

Paid and unpaid work in the second half of life

Hanna Vangen

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Summary

This thesis investigates paid and unpaid work in the second half of life. Unpaid work is regarded as formal volunteering or informal help and caregiving for family and the social network.

Participation in paid and unpaid work are studied in relation to two events that can occur in this phase of life. The first is the transition to having parents who may need help or care and the adoption, or intensification, of a potential caregiver role. The second event is the transition from paid work to retirement. Central questions concern the extent to which there exists a competing or complementary association between paid and unpaid work, as well as whether engagement in unpaid work can be explained by previous engagement and motivations in unpaid work. The overall research question is: *How is participation in unpaid work motivated, and related to paid work in the second half of life?*

The first paper indicates a competing relationship between paid and unpaid work (both volunteering and informal help and caregiving). By studying people in an age group (62–75 years) who have the opportunity to retire, I find that both work exit and part-time work are associated with a higher probability of doing unpaid work compared with remaining in full-time work. However, previous engagement in unpaid activities matters considerably, regardless of paid work status, showing that the concept of continuity is the most important predictor of unpaid work engagement in later life.

In the second paper, I examine the extent to which the motivation for informal help and care for parents can be found earlier in the life course. I find no association between either previously expressed norms of filial responsibility or the concurrent employment status, but the quality of the relationship between adult children and their parents matters for the care they provide 10 years later.

Finally, in the third paper, I study how caregiving for parents in the last period of their lives is related to the adult children's employment and earnings in the same period. I find no association with employment but a decline in earnings among caregivers compared with non-caregivers, before and after the death of the parent. For caregiving daughters, this decline starts before the year of death, while earnings of both caregiving sons and daughters decline after the parent's death.

The results indicate a competing relationship between paid and unpaid work in the second half of life, but the manner in which this association emerges depends on the life transition being

studied. Unpaid work is related to work exit for those with the opportunity to consider retiring. In the last period of a parent's life, care provision for parents is found to be negatively related to earnings but not to the probability of being employed. The results also show that participation in unpaid work is embedded in patterns created earlier in life, and not necessarily first initiated after retirement. Previous perceived quality of the relationship with the parent was associated with provision of help and care from daughters, not sons, but the agreement with filial responsibility norms was not associated with informal care.

This thesis does not employ causal designs according to counterfactual tradition, and it cannot draw conclusions about the causal direction of these relationships based on its studies alone. However, the thesis describes and offers new knowledge and interpretations of the associations between paid and unpaid work status found in previous research. Participation in paid and unpaid work is studied using the *Norwegian Life Course, Ageing and Generation Study* (NorLAG) which consists of longitudinal survey data linked to data from public registers. By using the linked and longitudinal data of the NorLAG study, the thesis shows that both earlier participation and relational patterns should be taken into consideration to understand the association between paid and unpaid work in the second half of life.

Sammendrag

Temaet for denne avhandlingen er betalt og ubetalt arbeid i andre halvdel av livet. Med ubetalt arbeid menes både deltakelse i frivillighet og uformell omsorg til familie og det øvrige sosiale nettverket.

I avhandlingens studier undersøkes betalt og ubetalt arbeid med utgangspunkt i to vanlige overganger i andre halvdel av livet: Den ene er foreldre som får behov for hjelp eller pleie, noe som for voksne barn kan innebære overgang til en omsorgsrolle. Den andre er overgangen fra betalt arbeid til pensjonering. Sentrale spørsmål er hvorvidt ubetalt og betalt arbeid står i et konkurrerende forhold, eller lar seg kombinere. Et annet spørsmål er hvorvidt tidligere engasjement og motivasjon har betydning for ubetalt arbeid, eller om engasjement i ubetalt arbeid endres i takt med endringer i yrkesdeltakelse slik som yrkesavgang. Det overordnede forskningsspørsmålet er: *Hvordan er ubetalt arbeid motivert og relatert til betalt arbeid i andre halvdel av livet?*

I den første artikkelen undersøkes det om det er et konkurrerende eller komplementerende forhold mellom betalt og ubetalt arbeid blant respondenter i alderen 62–75 år –en gruppe som har mulighet til å gå av med pensjon. Jeg finner at både det å slutte å jobbe og å jobbe deltid øker sannsynligheten for å gjøre ubetalt arbeid, sammenliknet med å fortsatt stå i fulltidsjobb i denne aldersgruppen. Samtidig viser studien at de som var engasjert i samme type ubetalt arbeid ti år tidligere er langt mer tilbøyelig til også å være det ti år senere.

I den andre artikkelen undersøker jeg hvorvidt uformell omsorg til foreldre kan forklares med utgangspunkt i motivasjoner og oppfatninger respondentene hadde ti år tidligere. Jeg finner at generelle oppfatninger om voksne barns omsorgsansvar for foreldre ikke har noen sammenheng med om de gir omsorg ti år senere. Kvaliteten i relasjonen til foreldrene ti år tidligere har derimot betydning for om døtre gir hjelp og omsorg til foreldrene.

Til sist, i den tredje artikkelen, undersøker jeg hvorvidt omsorg gitt til foreldre i de siste leveårene har sammenheng med endringer i yrkesaktivitet og inntekt for de voksne barna i perioden før og etter foreldres død. Jeg finner ingen sammenheng med endringer i sysselsetting som kan knyttes til om de voksne barna gav omsorg til foreldrene eller ikke. Samtidig viser studien at voksne barn som gir omsorg til foreldre i livets siste fase har en mer negativ inntektsutvikling sammenliknet med de som ikke gjør det. For omsorgsgivende døtre starter den negative utviklingen allerede før foreldrenes død, mens både sønner og døtre som har gitt

omsorg til foreldre har en mer negativ utvikling i inntekt enn de som ikke gjorde det, i årene etter foreldrenes død.

Samlet sett viser resultatene at det er en viss konkurranse mellom betalt og ubetalt arbeid i andre halvdel av livet. Måten dette utspiller seg på er derimot ikke helt lik i ulike livsfaser og overganger. Sannsynligheten for å gjøre ubetalt arbeid, bredt forstått, er høyere for de som har sluttet å jobbe enn de som fortsatt jobber fulltid i en alder hvor pensjonering er et alternativ. Jeg finner derimot ikke en sammenheng mellom å gi foreldreomsorg og å slutte å jobbe blant personer i yrkesaktiv alder, men de som gir foreldreomsorg har imidlertid en dårligere inntektsutvikling i perioden rundt foreldres død enn de som ikke gir slik omsorg. Resultatene viser også at ubetalt arbeid i eldre år kan være avhengig av erfaringen med deltakelse i slikt arbeid fra tidligere, og at de som ikke har erfaring med ubetalt arbeid tidligere ikke nødvendigvis begynner med det som følge av endringer i yrkesdeltakelsen. Når det gjelder foreldreomsorg har relasjonskvalitet over tid en større betydning for hvem som blir omsorgsgivere enn generelle oppfatninger om voksne barns omsorgsansvar.

Avhandlingen består av deskriptive studier og konkluderer derfor ikke med kausale sammenhenger. Den bidrar med beskrivelser av sammenhengen mellom betalt og ubetalt arbeid over tid som både bekrefter og gir ny forståelse av funn fra tidligere forskning. Studiene i avhandlingen bruker data fra *Den norske studien av livsløp, aldring og generasjon* (NorLAG) som består av longitudinelle intervjudata koblet til registerdata. Dette datamaterialet gir mulighet til å studere både sammenhengen mellom betalt og ubetalt arbeid, og betydningen av egne oppfatninger og familierelasjoner over tid. Funnene viser at både tidligere deltakelse og relasjonelle perspektiver bør tas i betraktning for å forstå sammenhengen mellom betalt og ubetalt arbeid i andre halvdel av livet.

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List of studies

Paper I:

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Paper II:

Vangen, H., & Herlofson K. (Under review in Ageing and Society 2021) *Why Care? How filial responsibility norms and relationship quality matter for provision of care to ageing parents*

Paper III:

Vangen, H. (2021). *The impact of informal caregiving on labour supply before and after a parent's death.* Journal of Population Ageing, 14(2) p. 201–228.

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1. Introduction

All over the developed world, mortality and fertility rates are declining. Demographic changes alter the population structure, as the number of individuals is increasing in older age groups and decreasing in younger groups, leading to ageing populations (Bloom et al., 2015). An increasing older population raises concerns about the sustainability of public finances, as expenditures on both health-care and pension systems are expected to rise. Hence, participation in paid and unpaid work in the second half of life has become a key topic in policy debates in many developed countries, including Norway.

One of the challenges of population ageing is the increasing need for long-term care and a sufficient supply of formal and informal caregivers in the future. Although there is no clear consensus over whether mortality decline and rising life expectancy entail a delay in the morbidity process (Crimmins et al., 2021; Storeng et al., 2021), the number of older people is increasing. Many will live active and healthy lives, yet more people may live with disease (Chatterji et al., 2015). If increasing needs are not managed by public health services, the pressure on family and informal networks may increase. Furthermore, the pension systems are challenged when people live longer after retirement. This challenge is met by pension reforms making it financially more beneficial to delay exit from the labour market, thereby contributing to the sustainability of future welfare systems.

‘Active ageing’ has become a key term in policy debates in ageing societies. Ideas of active ageing focus on the potential for more societal contributions from older individuals during and after their working lives. Thus, such policies also encourage productive activity in areas other than the labour market. One example is the contributions of retired individuals in various types of voluntary work. Another example is informal help and care provided to the family and social network. A central question is whether paid and unpaid activities conflict or complement each other. Answering this question is important to understand the role of active ageing policies in ensuring welfare sustainability and the potential for contributions from people in the second half of life.

Remaining in paid work, retiring, providing informal help or engaging in voluntary work are not isolated acts, and may be related to earlier engagements and motivations. In this thesis, I take a life-course perspective and investigate motivations and engagement in paid and unpaid work over time. My overarching research question is: *How is participation in unpaid work motivated and related to paid work in the second half of life?*

In the three papers of this thesis, I address this topic by addressing two more specific questions:

1. Is there a competing or complementary association between paid and unpaid work in the second half of life? (Papers I and III)
2. How is engagement in unpaid work (volunteering and informal help and care) associated with previous engagement in and motivations for unpaid work? (Papers I and II)

The first paper, *Associations between paid and unpaid work among Norwegian seniors: competition, complementarity or continuity?* addresses how engagement in unpaid work is related to paid work and the retirement transition in late careers. Studying those in an age group (62–75 years) who have the opportunity to retire, we ask whether those who have left the labour market differ from those remaining in full- or part-time work in terms of participation in unpaid work. We also ask whether the association depends on previous engagement in unpaid work. In this paper, unpaid work is broadly defined as volunteering or informal help and care, regardless of the recipient. In the last two papers, the focus is on informal help and care in the relationship between adult children and their parents. In the second paper, *Why Care? How filial responsibility norms and relationship quality matter for provision of care to ageing parents*, we explore whether care for parents is related to previous motivations, i.e. norms of filial responsibility and the quality of relationship with a parent measured 10 years earlier. Finally, in the third paper, *The impact of informal caregiving on labour supply before and after a parent's death*, I study how caregiving in the last period of a parent's life is related to the adult children's employment and earnings before and after the death of the parent.

To answer the questions above, I use panel data from the *Norwegian Life course, Ageing and Generation Study* (NorLAG). A central issue in this thesis is *how to* study and explain paid and unpaid work. This thesis does not employ the causal designs of counterfactual tradition but describes and brings new knowledge and interpretations of the associations between paid and unpaid work status reported in previous research by studying the phenomena from a longitudinal perspective.

Furthermore, I contribute to the discussion of the consequences of population ageing at two levels: the sustainability of the welfare state on a macro level and the work–life balance in individual lives at the micro level. In the final chapter, I discuss the prospects for future engagement in paid and unpaid work by Norwegian seniors and the potential unintended consequences of policies encouraging paid and unpaid work at the individual level.

Definitions and delimitations

The focus of this study is on paid and unpaid work in various phases of the second half of life, meaning midlife (from age 40 years) to old age. This includes people in the middle of their working lives, senior workers and those past retirement age. In Papers II and III, the specific life phase of interest is when people experience parents with increasing care needs and may adopt a caregiver role. This transition most often occurs in midlife but may also begin in the years prior to and after retirement. The other transition in focus in Paper I is that from paid work to retirement, which usually occurs when people are in their sixties.

Paid work is referred to as ‘labour market participation’ or ‘labour supply’. Unpaid work includes informal help and care as well as formal volunteer work. These are treated as distinct activities in the analyses and may have different explanations. It may be difficult to establish where voluntarism ends, and informal help starts. Although it can be argued that informal help and care are more often considered to be obligatory or occur within reciprocal relationships while voluntary work is provided freely with no expectations of remuneration, there are many exceptions (Musick & Wilson, 2008). I address the operationalisation of the activities more thoroughly in Chapter 5.

The context of my thesis is Norway, categorised as having the ‘Scandinavian’ or ‘Nordic’ welfare model with universal welfare and public responsibility for providing long-term care. Characteristics of this model are important to understand both unpaid work provision and its association with paid work. The ongoing change in the prioritisation and composition of care services in the Norwegian long-term care system is also relevant to my research. However, it is beyond the scope of the three empirical studies in this thesis to explore any association between the contribution of informal caregivers and volunteers, and changes or differences in either long-term care services or retirement policies.

Outline

The structure of the thesis is as follows. The next chapter (Chapter 2) expands on the background. It first gives an overview of population ageing and describes challenges for future welfare provision in Norwegian society, followed by a description of policy responses to these challenges. Chapter 3 then follows with a theoretical discussion of the concept of ‘work’, its societal meaning, explanations of the motivations for and engagement in paid and unpaid work, and the association between the two. The last part of this chapter examines the welfare state context and its implications for how such work is performed and balanced. In Chapter 4, I

elaborate on previous research on associations between paid and unpaid work, emphasising those studies conducted in the Norwegian context. I also address the gap in previous research here. Chapter 5 presents the data and methods, including an ontological and epistemological discussion of causation and the scope of the conclusions. This is followed by a summary of the empirical papers in Chapter 6 and a discussion of overarching conclusions in Chapter 7.

2. Background

In this chapter, I begin by presenting participation rates in paid and unpaid work in Norway before providing an overview of the demographic trends that underlie and motivate the research questions. These trends have led to increasing concern among policymakers over the sustainability of the long-term care system as well as a greater awareness of the potential for longer and fuller working lives. These issues are described in greater detail below under the heading ‘Demographic context: an ageing population’. Here, I also outline the active ageing framework expressed in policy. Furthermore, I present policy responses to the challenges in relation to three main policy areas: the labour market (including pension policy), unpaid work (informal care and volunteering) and long-term care.

Participation in paid and unpaid work in Norway

The Norwegian labour market is characterised by relatively high employment rates for both men and women (OECD, 2021). In 2017, 67.7 per cent of the labour force (the population aged between 16 and 74 years) were in paid employment (Bhuller & Eika, 2020). The rate has decreased slightly from 70.7 per cent in the year 2000, but the decrease is partly explained by the oldest age group (which has a lower participation rate) constituting a larger share of the labour force (Bhuller & Eika, 2020). However, during the same period, there has been an increase in the employment rate among the oldest people (aged 55 to 74 years) (Bhuller & Eika, 2020), in particular among those aged 62–66 years, following the pension reform in 2011 (Bjørnstad, 2019). In 2018, the average retirement age was 65.7 years, which is an increase of two years from 2001. The rise in average retirement age has been especially marked among men in the private sector (Bjørnstad, 2019).

Despite high participation rates, Norway is also characterised by relatively high numbers receiving disability pensions or being absent from work on sick leave (Hemmings & Prinz, 2020), especially women (Nossen, 2019). The Norwegian labour market is also characterised by a relatively high proportion of part-time workers. Of those aged 15–74 years in employment, 24.5 per cent worked part time in 2020, with a higher proportion of women than men (34.9% and 15.3% respectively). However, the proportion of women working part time has decreased by 8.7 percentage points from 43.6 per cent in 2006, and the largest decrease in this period (from 50.5% to 39.4%) was seen among the oldest women (aged 55–74 years). For men, however, there was a small increase of 2.5 percentage points of those working part time in the

same period, but there was only a 0.9 percentage-point increase (from 17.0% to 17.9%) among the oldest men (Statistics Norway, 2021e).

Let us now turn to participation in *unpaid work*. A significant proportion of the population provides informal help and care. According to the Norwegian Survey on Living Conditions in 2019, a total of 16 per cent of the adult Norwegian population provided *regular* unpaid help to others, with the highest share, 25 per cent, being women aged between 45 and 66 years. While the proportion of women providing help was stable on 25 per cent since 2008, 22 per cent of the men in the same age group reported regularly helping in 2019—an increase of four percentage points (from 18%) since 2008. In the oldest age group (67 years and older), the proportion was 13 per cent of both men and women (Statistics Norway, 2020). According to a different data source, the *European Social Survey*, 42 per cent of the Norwegian sample reported spending ‘any time looking after or giving help to family members, friends, neighbours or others because of long-term physical ill health or disability, long-term mental ill health or disability, or problems related to old age’. Four per cent reported providing such help for more than 11 hours a week (Verbakel et al., 2017, pp. 90-91). The variation in the prevalence reported above illustrates that participation rates in unpaid care are sensitive to the measure of the unpaid work used. However, when investigating the question using the same measure across countries, several studies have shown relatively high rates of informal help and care in the Nordic countries, except for the most intensive care which is more prevalent in countries further south in Europe (Brandt, 2013; Verbakel et al., 2017).

In addition, participation in voluntary work seems more common in Norway than in many other European countries (Hansen et al., 2018; Henriksen et al., 2019). In a 2017 survey, 63 per cent of the Norwegian population reported having provided some voluntary work during the previous 12 months (Fladmoe et al., 2018). Furthermore, in relation to age, the proportion of volunteers is highest among people aged 35 to 49 years (73%), while 54 per cent in the age group 67–79 years had volunteered in the previous year. Traditionally, voluntary organisations in the fields of culture or leisure engage a large part of Norwegian volunteers in Norway, and in 2017, 44 per cent reported having volunteered for such an organisation. A survey of volunteering in care work found a relatively modest proportion of 4.4 per cent involved (Skinner et al., 2020). The pattern is similar for older age groups but volunteering in health and care services is more common. Among volunteers in the age group 53–71 years, the most common forms of voluntary work were episodic work such as that related to cultural or sports

events (26%) while 18 per cent had performed voluntary health and care work (Hansen & Slagsvold, 2020).

As described above, participation rates in both paid and unpaid work are relatively high in Norway, but participation differs across groups. Gender differences in volunteering have decreased over time, but people with higher education and incomes and those who are employed are more likely to volunteer (Fladmoe et al., 2018). Demographic developments and socio-demographic changes will be important for future participation patterns. This is the topic of the next section.

Demographic context: an ageing population

Increased longevity and falling birth rates change the age distribution of the population. In Norway, birth rates were relatively high for a long period, but have fallen steadily in recent years from 1.98 child births per woman in 2009, reaching an all-time low of 1.48 in 2020 (Statistics Norway, 2021c). Norway's neighbouring countries are witnessing the similar trends (Statistics Norway, 2021a). At the same time, Norwegian males born in 2020 can expect to live eight years longer than those born 30 years earlier, and for females the increase in life expectancy is five years. Life expectancy for 70-year-old men has increased by 4.3 years in the period from 1990 to 2020 (from 11.4 to 15.7 years) and 3.2 years for women (from 14.6 to 17.8 years) (Statistics Norway, 2021d). Fertility and mortality trends are changing the population structure as the older population increases and the younger population decreases. In 2020, there were 23 people aged 67 and over for every 100 people of working age (16–66 years), or almost four people of working age per person aged 67 years or above¹. The 'dependency ratio' is expected to reach 40 to 100 by 2050 (Statistics Norway, 2021f).

Longer lives as a result of a healthier population is promising news, but more years of life may also mean more years living with disease. The question is whether increased life expectancy will lead to healthier and more productive years or more years with disease and dependency. Measures of 'healthy life expectancy' combine information about mortality and morbidity, and different scenarios are suggested: 1.) *compression of mortality* into a short period in the last period of life, 2.) *expansion of morbidity* with more years of disease, and 3.) an *equilibrium of morbidity*, which means that less severe morbidity is accompanied by greater prevalence of moderate illness (Chatterji et al., 2015). Healthy life expectancy is unequally distributed in the

¹ 67 years is the previous statutory retirement age, and it is when all Norwegian citizens are entitled to a minimum pension.

population and associated with both gender and educational background: Women can expect to live longer than men, but also to experience more years with disease. People with higher education live both more years overall and more in better health (Storeng et al., 2018; Storeng et al., 2021). The proportion of people with higher education is expected to continue to rise, as is the healthy life expectancy. Among individuals aged 70 years and older, an increase in disability-free life expectancy of 4.1 years for men and 4.6 years for women was observed from 1995 to 2017 (Storeng et al., 2021). This accords with the compression scenario described above but does not automatically mean less need for care services. The number of people in the oldest age group is also expected to rise, and although recent research has showed trends towards compression of morbidity in Norway, the need for health and care services will not be lower in the foreseeable future. The number of people aged above 70 years *needing help* is predicted to increase from 150,000 in 2020 to 250,000 in 2035 (Strand et al., 2021). Estimations made by GjØra et al. (2021) may serve as another example of increasing numbers of people depending on long-term care in the following years: the number of people with dementia in Norway is expected to more than double from 2020 to 2050.

Policy response to population ageing

The politics of ageing has been a cornerstone of the development of welfare states in Europe (Walker & Foster, 2013, p. 28). Primarily the pension system—but also the long-term-care sector—rests on the generational welfare contract between the population, whether of working age or not (Svallfors, 2008; Walker, 1996). A combination of participation and dependency throughout the life course provides legitimacy to more extensive welfare spending on the youngest and oldest generations. From the 1970s onwards, this solidarity has been challenged by increased longevity, a rise in early retirement pensions, and consequently a dramatic increase in retirement costs. The developments have resulted in a focus on ‘the burden of ageing’ and a request for more contributions from older generations, with an emphasis on productive ageing throughout extended working lives (Walker & Foster, 2013). However, changes in demographic dependency rates based on chronological age do not necessarily result in a proportional change in the dependency burden of human needs, illustrated by the different scenarios of healthy life expectancy in the previous section. The idea of ‘active ageing’ has been proposed from both scientific and political perspectives in opposition to a focus on the older generations as economically dependent on the younger. The concept of active ageing and policy responses to population ageing in terms of active ageing *policies* in Europe, including Norway, in recent decades are described in the next section.

Active ageing policies

Over the past decade, several initiatives have been launched to stimulate the participation of older people in society. The policies span from the labour market sector and civil society to health politics. Examples include ‘The European Year of Active Ageing and Solidarity between Generations’ in 2012 (European Commission, 2010), ‘Live longer, work longer’ (OECD, 2006) and ‘Towards an age-friendly world’ (WHO, 2015). In Norway, a new pension system to encourage longer careers was introduced in 2011 (Bjørnstad, 2019). Another example of active ageing policies in Norway is found in the government’s recent *Leve hele livet* reform (‘A full life—all your life’) (Meld. St. 15 (2017-2018)), which aims to create an age-friendlier society where older people participate in the community and live meaningful lives.

The concept of ‘active ageing’ emerged in policy around the turn of the last century, marking a positive turn in emphasising that elderly people, living longer and more healthy lives, have greater potential for continued contributions in several societal areas than earlier generations. It is claimed that ‘positive’ active ageing policies reveal the potential of older people to contribute to the future sustainability of welfare states instead of threatening it. This view is now the leading political answer to the challenges of ageing societies in Europe. Nevertheless, active ageing is not a definite concept, and it entails different definitions as well as political outcomes.

Two lines of thought emerging from the active ageing concept can be recognised and described—one narrow and the other more comprehensive (Walker & Maltby, 2012). According to Walker and Maltby (2012), the narrow concept of ‘active ageing’ is conveyed by the Organisation for Economic Co-operation and Development (OECD) and the European Union (EU). This conception focus mainly on employment productivity in older ages: ‘Active ageing refers to the capacity of people, as they grow older, to lead productive lives in society and the economy’ (OECD, 2000, p. 126). The view is exemplified by the OECD report titled *Live longer, work longer* where the key message was:

... that population ageing is both a challenge and an opportunity. If nothing is done, population ageing poses serious economic and social challenges. But it is also a tremendous opportunity if longer and healthier lives are matched by longer working lives. (OECD, 2006, p. 3).

This description of the possible ramifications of ageing populations is based on the perspective that welfare is an economic burden. The view that future welfare sustainability depends on older

workers extending their *working lives* is part of ‘the discourse of financial sustainability of the (welfare) state’ (Kildal & Nilssen, 2013, p. 71), that predominates in both the EU and OECD.

The World Health Organization (WHO) promotes a more comprehensive definition of active ageing. This definition implies a holistic perspective on the ageing process, both by including the precursors of activity in old age and by widening the scope of what are recognised as activities and what is meant by being active. The WHO defines active ageing as ‘...the process of optimising opportunities for health, participation and security in order to enhance quality of life as people age’ (WHO, 2002, p. 12) In the WHO’s framework for policymakers, it is highlighted that active ageing does not only concern productive labour:

The word ‘active’ refers to continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force. Older people who retire from work, are ill or live with disabilities can remain active contributors to their families, peers, communities and nations. Active ageing aims to extend healthy life expectancy and quality of life for all people as they age. (WHO, 2002, p. 12).

Although policy discussions have tended to concentrate on paid employment, the comprehensive WHO definition illustrates that active ageing concerns far more than extending working life (Foster & Walker, 2015). The definition also refers to contributions from outside the labour market, such as informal care and volunteer work. In fact, according to this definition, active ageing does not presuppose contributions to the community outside the individual her/himself: ‘Maintaining autonomy and independence as one grows older is a key goal for both individuals and policy makers’ (WHO 2002, p. 12). The WHO represents a normative and rights-based approach to active ageing, addressed to all policy areas that may affect people’s quality of life as they age. The normatively informed definition by the WHO that emphasises active ageing as *autonomous* ageing contrasts with the economic approach to active ageing proposed by the EU and OECD (Kildal & Nilssen, 2013).

Walker and Maltby (2012) argue that despite a cultural shift in the perception of ageing from dependency to activity and participation, the emphasis of participation in the labour market has remained a political priority, and the narrow approach focusing primarily on production in the labour market fails to address the opportunities and challenges in ageing populations. Inspired by the active ageing definition proposed by the WHO, the authors call for a life-course perspective on the conditions for participation and quality of life, as well as comprehensive policies to connect separate policy fields such as employment, health and pensions (2012, p.

128). This illustrates the ambiguity of the concept. The term ‘active ageing’ is used both in the narrow sense, as a term for productive ageing, and contrary to the narrow focus on productive ageing.

In the following sections, I present how the challenges from population ageing are met by policies in the labour market, civil society and the family sphere, as well as the health-care services in Norway. A central focus is on how the idea of ‘active ageing’ is implemented in the different policy fields.

Labour market policies

As noted above, promoting extended and fuller working lives is one of the main policy responses to the challenges of population ageing. The perception of active ageing as productive ageing may be connected to the social policy turn towards activation. Activation policy is a worldwide trend with the goal of activation to work, and ‘active conditionalities’ that make benefits dependent on activity is the main strategy (Hagelund et al., 2016). The idea of the Norwegian workfare policy (*arbeidslinja*) was emphasised in Norwegian politics in the 1990s (Kildal, 1998) as a crucial prerequisite for the sustainability of the welfare state. Activation politics in Norway is based on the principal of reciprocity and interdependence between the individual worker who puts his or her efforts into the labour market and the community that provides social security (Stjernø, 2009). The policy is traditionally associated with the qualifications of younger generations of social clients and the unemployed. It is a normative informed tradition with a focus on developing individual citizens’ moral and personal responsibility for themselves. It is based on the claim that work is good not only for society but for individual workers (Betzelt & Bothfeld, 2011; Kildal, 1998). However, the reasoning behind activation policies is also recognised in reforms aimed at extending working lives in later life (Grødem, 2020; Hagelund et al., 2016, p. 27).

Activation and active ageing policies have been implemented through several reforms and policy measures in the past decade to encourage older workers to maintain their participation in the Norwegian labour market. The Norwegian pension reform since 2011 offers incentives to work longer before retirement or to combine the pension with work. The new pension system has resulted in a higher average retirement age over the period, especially among men in the private sector (Bjørnstad, 2019). Furthermore, in 2015 the government decided to raise the employment protection age limit in Norway (from 70 to 72 years) (Hellevik & Herlofson, 2020). The aim of extending working lives has been supported by the agreement on Inclusive Working Life (the IA agreement) whereby employers have had greater responsibility for

preventing people from leaving employment and reducing sickness absence. Between 2014 and 2018, one of the agreement's goals was to expand, between 2009 and 2018, expected occupational activity after the age of 50 by 12 months: a goal that was reached before the expiry of the agreement (Bjørnstad, 2019).

Every fifth year, a Norwegian white paper titled *Perspektivmeldingen* (Long-term Perspectives on the Norwegian Economy) describing the challenges in Norwegian society is published. In the most recent edition (Meld. St. 14 (2020–2021)), the primary solutions to these challenges are related to both activation and active ageing policies. One of the main strategies for securing future financial sustainability is to promote labour market participation by groups with low or no participation today. Apart from reducing the number of people on disability pension, a shift from part-time to full-time work and extended working lives are proposed as some of the main strategies to encounter the challenges deriving from population ageing for the sustainability of the Norwegian economy. The focus is on promoting activation and active ageing by reinforcing the Norwegian workfare policy and the societal value of unpaid work in producing welfare is not taken into consideration in this policy document.

Informal care and volunteering

In the comprehensive definition of active ageing promoted by the WHO, informal caregiving and voluntary work are recognised as important contributions to society. It has also been proposed that both informal caregivers and volunteers are part of the solution to the challenges of population ageing in the health and care sectors in Norway in the coming years (Blix et al., 2021). In the following I describe the role of informal caregiving and volunteering in Norwegian policy.

Informal caregiving constitutes an important part of welfare production in the Norwegian society. Estimations of the amount of time spent on informal care provided in 2017 show that informal caregivers already provide almost as many working years (136,000) as formal caregivers (141,000). Calculations of future needs for personnel in the health and care sector rely on informal care remaining stable at this level (Hjemås et al., 2019, pp. 69-70). Nevertheless, the principle of universal health care persists in Norway, and there is no sign of a legal transfer of responsibility for older family members from the state to the family in any official governmental statements. The message from the Norwegian government is rather that there is little potential for increased levels of informal care in the future. The maintenance of participation in paid work, *arbeidslinja*, remains the priority of Norwegian policy and is used to as justification for not expecting increased levels of family care (Meld. St. 14 (2020–2021),

p. 269; Meld. St. 15 (2017-2018), p. 47). Moreover, recent white papers such as *Leve hele livet* and *Perspektivmeldingen* recognise the potential conflict between care responsibilities and labour market participation, and that families need support to combine work and care responsibilities.

Neither adult children nor spouses have any legal obligation to support parents or partners in need of help. This normative principle of family policy has not been politically contested and is widely acknowledged in Norwegian society (Daatland & Herlofson, 2003; Daatland et al., 2011). The view that care for adults is a public responsibility in Norway is reflected in the acknowledgement of informal help and care in present policies. Adults do not have the same right to paid care leave to care for adult family members as they do for small children. Only sparse benefits are available for people who provide informal care. In 2010, workers received the right to a maximum of 10 days of unpaid leave to care for close family members. In addition, there is a care benefit scheme of up to 60 days in the last phase of life of close family members (Working Environment Act, 2005, §12-10). These arrangements are a result of both researchers and official Norwegian reports making family caregivers' need for a balance between care responsibilities and paid work more visible (Gautun & Hagen, 2010; NOU 2011: 11; NOU 2011: 17).

As mentioned above, long-term care services for adults in Norway are in principle allocated based on 'universalist' principles. Correspondingly, those with close family members have the same right to services as those without potential caregivers in their informal network. However, there are indications of family responsibility being 'informally' present in the prioritisation of services at the local level (Førland & Fagertun, 2021). Furthermore, older people with daughters receive less help from the health services than those with sons (Jakobsson et al., 2016), indicating inequalities in the allocation of services in Norway based on the presence of family.

Although the official signals regarding informal caregivers' roles in welfare production are somewhat mixed, the Norwegian government is more explicit in expressing the potential role of the voluntary sector in solving future challenges. Volunteers are considered central in resolving some care needs. This is illustrated in the recent *Leve hele livet* reform, which promotes initiatives such as the recruitment of more volunteers into health and care services, a sector that has not traditionally been occupied by volunteers (Meld. St. 15 (2017-2018)). The reform also indicates the potential for recruitment of seniors for volunteer work. It points to calculations predicting that senior volunteers currently contribute 45,000 working years, and that there is potential for almost twice as much in the future (Meld. St. 15 (2017-2018), p. 76).

Long-term care policies

The organisation and development of the health and care sector is relevant to the study of paid and unpaid work among seniors because it is an important condition for demand for care from informal providers. Long-term care is defined as ‘the care for people needing support in many facets of living over a prolonged period of time’ (Colombo et al., 2011, p. 39). Here, I concentrate on how long-term care for older adults is set up and allocated according to Norwegian policy.

The Norwegian welfare state is characterised by universal access to health and care services provided by the municipalities, and older people are thus entitled to receive assistance from public health and care services when needed (Patients' Rights Act, 1999, §2-1a). Compared with other countries, public spending on eldercare in Norway is among the highest in Europe (Huseby & Paulsen, 2009). However, there are several examples of the services being insufficient for people’s needs from the perspective of family caregivers (Gautun & Bratt, 2017; Opinion, 2021; Ugreninov et al., 2017).

In Norway, the municipalities play an important role in the care sector. Since the 1980s, the responsibility for long-term care for a rising number of recipients has been delegated to the municipalities. To cut the costs of an extensive health and care sector, de-institutionalisation of long-term care was initiated in the early 1990s. After the official report by Gjærevoll in 1992 (NOU 1992) and followed by the *Handlingsplan for eldreomsorgen* (‘Action Plan for Elderly Care’) (St. meld. nr. 50 (1996-1997)), there was substantial investment in ‘residential care homes’ all over the country. The focus was on a transfer of public to private responsibility for one’s own housing and creating facilities to support independence from long-term care institutions for as long as possible (Daatland, 2014).

The situation today is characterised by an elevated threshold for institutionalised care (Gautun & Bratt, 2017), and a transformation of nursing homes into more specialised units was amplified by *Samhandlingsreformen* (‘The Coordination Reform’) in 2012 (Tingvold & Magnussen, 2018). The aim of this reform was to reduce the length of hospitalisation, with the consequence that people are discharged from hospitals earlier and that more severe conditions than before are treated in the municipalities. Municipal care is thus under pressure from both an increasing number of older people and receiving more tasks (Gautun, In press).

While those with the greatest needs receive care in institutions, primarily nursing homes, most care recipients receive *homecare* in the municipalities (Statistics Norway, 2021b). However,

the continual downscaling of institutional care since the 1990s has not been compensated for by a corresponding increase in homecare for the older population (Gautun et al., 2012; Otnes, 2015). Simultaneously, there has been an increase in resources allocated to younger user groups and indications of services being assigned to younger users being based on other standards (of living) and interpretation of needs than among older users (Gautun & Grødem, 2015). There has also been a development in the home services provided by the municipalities, which have been limited to offering mainly home *care* and less *practical* help (Otnes, 2015).

The aim of independence from public services for as long as possible remains a goal in the development of services and has been echoed in the recent white papers (Meld. St. 14 (2020–2021); Meld. St. 15 (2017-2018)). The focus of these papers is on maintenance of individuals' health and functioning and autonomy from long-term care for as long as possible. The focus of care services on facilitating individual independence has been labelled 'Active care' and is related to goals closely linked to the comprehensive concept of 'active ageing', framed as support for self-reliance and independence from services (Ervik, 2019). However, if accompanied by a downscaling of the home care provided in the municipalities, the focus on independence from services may result in more pressure on the family and informal network of people with long-term care needs.

Conflicting policies?

Different policy fields respond differently to the challenges of population ageing. The various conceptualisations of the term 'active ageing' have divergent results in perceptions of human potential and quality of life. When the aims of different policy fields conflict, there may be consequences at the individual level. When policy aims and measures are not co-ordinated, the prospects for welfare sustainability may be misjudged, and the policies fail. As we have seen so far, Norwegian ageing policies focus on continued engagement in the labour market and public care.

Politicians' embracement of the concept of active ageing may be explained by its promise of an untapped resource among older workers, but little attention has been given to the other roles of these workers that may hamper this prospect. The 'link between work and social inclusion is typical of the Norwegian ageing policy approach and fails to appreciate the much broader conception of social inclusion, which encompasses civic participation, such as older people as caregivers' (Ervik & Helgøy, 2013, p. 189).

People may experience demands from several domains at the same time, and changes in one sector may have unintended consequences in terms of how individuals balance demands from other sectors. One example is that low levels of care services may put more pressure on families and other sources of informal care, and conflict with the aim of fuller and extended working lives. Increased labour market participation may also raise the barrier to engagement in informal help and care or volunteer work. With regard to welfare sustainability, the narrow and dominant conceptualisation of active ageing as *paid* work fails to recognise the important societal contributions from individuals providing care or voluntary work. An important group of informal caregivers are those providing care for older parents—often women in the second half of their working lives. There is a risk that the partnership between informal carers and the welfare state will break down if the proponents of active ageing policies are too eager in retaining older workers in full employment without taking into account their need to reconcile their roles as workers and carers.

How paid and unpaid work are recognised and valued may have consequences for how policies are shaped. In the next chapter, I discuss how paid and unpaid work are conceptualised from more general theoretical perspectives.

3. Theories of paid and unpaid work

In this chapter, I begin with a general discussion of how work is understood and defined from a societal perspective. I present general theories of ‘work’—what it is, and how different activities fit into the concept. I discuss the distinction between paid and unpaid work and examine whether and how the two can be distinguished in terms of their implications for individuals and society. Next, I present theories of different motivations for and drivers of individuals’ engagement in various kinds of work, with a focus on unpaid work and its interplay with paid work. I continue with a general description of ways to understand work in the second half of life by describing the life-course perspective. Furthermore, I discuss the impact of welfare policy context for (paid and unpaid) work behaviour. I argue that the association between paid and unpaid work depends on context and that the organisation of welfare provides the conditions under which people balance their participation in the different fields.

What is work?

The thesis addresses the relationship between paid and unpaid work and the motivations for unpaid work in the second half of life. In this context, unpaid work includes volunteering, informal helping, and caregiving, which are sometimes referred to as ‘activities’. The difference between what we call only an ‘activity’ and what we call ‘work’ is not straightforward. Not all activities are considered work, and the kinds of activities that are considered as work change over time and between contexts.

Work has been described both as a necessary evil but also more positively as meaningful self-realisation or vocation (Svendsen, 2014). The negative view can be traced back to the ancient Greeks. To Aristotle, work was just a necessary means to obtain highly valued activities such as leisure and intellectual activities (Stigen, 1973, pp. 39-40). Karl Marx (1818–1883) was one of the most influential thinkers regarding work and its meaning in recent times. Contrary to Aristotle, Marx saw work as an inherent part of being human and argued that humans realise their potential through work. However, work lost this meaning when fragmented through the division of labour that characterises modern production systems, which resulted in individuals being alienated from themselves (Svendsen, 2014, pp. 31-32). To Marx, work was not an evil in itself—if freed from these conditions of production. This positive view of the role of work in human life, emphasising self-realisation and human development, has characterised the conception of work in recent centuries (Stigen, 1973).

Together with the industrial revolution, work as *paid* labour emerged as the norm. According to Marx, because workers did not control the means of production, they were forced to sell their labour on the market. The value of the product was equal to the labour invested in it. Adam Smith showed how the streamlined production process gave rise to economic growth, and was the first to describe work as an activity that created wealth, and not only tangible products (Svendsen, 2014, p. 33).

The conceptual division between paid and unpaid work in this thesis follows the boundary between activities offered on the labour market and outside it. Where the line between these spheres is drawn depends on the cultural and historical context. Many domestic activities that were unpaid several decades ago are now offered by the market or the state. One example is care work, which today is typically offered by professional workers. Women were the main providers of domestic care and housekeeping at home, and they are now paid to do many of the same activities, either on the private market or as public services (Folbre & Nelson, 2000; Koren, 2012).

Kari Wærness' concept of *care work* is an example of a definition of work that breaks with the paid/unpaid distinction. To her, the term 'care work' can be applied to both paid care work provided as formal health and care services and to unpaid informal care for dependent children or adults with care needs. To Wærness, what counts as care work depends on the power distribution within the relationship in which it is provided. However, it is not the relationship between employer and employee that defines it as care work but that between the receiver and provider. She distinguished between 'care' provided to dependent and non-dependent people—the first she labelled 'care work' and the second, 'service provision' (Wærness, 1984). To Wærness, it is neither the activity in itself, nor its product, that determined whether an activity is regarded as care work but *the social relations* of the work.

Another example of a concept of work that breaks with the distinction between paid and unpaid work is the one between *productive* and *non-productive* activities. The economist Margaret Reid introduced unpaid activities in economic theories of work. She separated 'production from consumption and social activities: *If an activity is of such character that it might be delegated to a paid worker, then that activity shall be deemed productive*' (Reid, 1934, p. 11. emphasis in the original). Here, the meaning of the activity is in principle detached from the social relationship in which it is provided and *who* provides it, also called the 'third-party criterion', which means that only activities that could in principle be carried out by a third person can be considered productive (Koren, 2012).

This independence with regard to who provides the work is not consistent with much of the work conducted within personal relationships between parties such as family members. According to this definition, it does not matter whether the carer is a mother or a ‘childcare worker’, a supporting son or a ‘social support provider’. However, whether work is paid and unpaid is not irrelevant to its outcome (Folbre & Nelson, 2000). For instance, welfare services provided by paid employees can be more effective because one person can provide effective and professional home care for several people. On the other hand, a family member may be able to provide more effective care because of his/her knowledge of the recipient but in most cases could not provide the same level of professionalism as an employed care worker (Folbre & Nelson, 2000). Both family care and voluntary work can be more flexible than public services, but volunteers can also choose *not* to engage in certain tasks and are a less stable source of welfare. Reid’s use of the third-party criterion broadened the scope of work in economic terms by including work conducted in the private sphere as productive. Yet this definition of productive work did not specify what kinds of activities were considered productive with respect to the *value* produced.

In a classic Norwegian article, Cato Wadel (1977) argued that the hegemonic understanding of work in the modern world is based on economic principles. More precisely, the concept of work is taken for granted as an activity demanded by, and offered on, the labour market for pay and that contributes to the production of goods and services. He argued that this economic perspective ignores socially valued activities conducted outside the labour market. This does not only apply to domestic activities previously performed by women and that were not recognised as productive work until they were transferred to the labour market. Moreover, informal institutions such as personal relations must be maintained through ‘social work’ by private people, and Wadel argued that the study of work in the social sciences should focus on the activities necessary to maintain such institutions. He defined work as ‘human activities that have been proven to maintain, establish or change universally valued social institutions’ (Wadel, 1977, p. 407, own translation). This is a more fundamental issue than the production of goods and services but is still often ignored in more established perspectives, as exemplified by the active ageing framework that dominates policy presented in the background chapter.

Wadel’s definition of work can be criticised for a lack of boundaries whereby activities are considered work. However, his view resonates with the feminist literature on unpaid work that is still most often performed by women and is not recognised as a societal contribution (Christensen & Syltevik, 2013; Koren, 2012; Orloff, 1993). According to Koren (2012), the

societal value of unpaid work is not considered when national accounts are calculated, exemplified by assessments of future welfare sustainability in policy documents, as shown in the previous chapter. However, one could argue that the entire economic production system depends on such unpaid activities. Fraser (2017) argues that the existence of waged work depends on social reproductive activities, including eldercare and voluntary activities conducted in communities.

...the capitalist economy relies on—one might say, free-rides on—activities of provisioning, caregiving, and interaction that produce and maintain social bonds, although it accords them no monetized value and treats them as if they were free. Various called *care*, *affective labor*, or *subjectivation*, this activity forms capitalism's human subjects, sustaining them as embodied natural beings while also constituting them as social beings, forming their habitus and the cultural ethos in which they move (Fraser 2017, p. 23).

By employing a broader concept of work than paid work, we can recognise the wide variety of human activities by which societies are reproduced and the structure under which welfare and wealth are produced.

Thus far, the discussion in this chapter has focused on how work is identified and conceptualised as paid or unpaid, productive or non-productive, based on external, observable criteria. Scholars have argued that a difference between paid and unpaid work is not only based on observable criteria but on the intrinsic *motivations* for providing such work—an issue I will address in more detail below when I discuss different explanations of why people engage in various kinds of work.

Why work?

Engagement in paid and unpaid work, as well as the associations between the different activities, have been studied from various theoretical perspectives. A rough line can be drawn between the neo-classical economic approach and the sociological approach. This thesis draws on theoretical explanations and empirical contributions from both economics and the sociological tradition.

The perspectives on work behaviour that I present here have in common the clause of 'methodological individualism', which states that social phenomena are made up of the actions of individuals based on their individual reasoning (Boudon, 2003; Coleman, 1990; Goldthorpe,

2016). The theories diverge regarding the extent to which these reasons are declared ‘rational’, and how rationality is defined (Boudon, 2003).

The theoretical backdrop for various understandings of the relationship between actions and their reasons is different understandings of *rationality*. Rational action, labelled ‘rational choice theory’, is based—in addition to reason—on principles such as instrumentalism, self-interest and cost-effective optimisation (Boudon, 2003 pp. 3-4). This view has had a strong influence on family theory because of the economic theorist Gary Becker. According to Becker (1991), the most effective division of labour between a married couple is the specialisation of men in the paid labour market and women in unpaid household chores, which made the nuclear family an effective unit in producing values and welfare.

Within the rational choice framework, activities of paid and unpaid work are considered to compete for individuals’ time and resources, and are therefore in mutual conflict and balanced against other aims such as leisure (Becker, 1965). However, the rational choice perspective has shortcomings in explaining social phenomena motivated beyond self-interest, cost-effectiveness and instrumentalism, which can be argued to be important motivators of caregiving and other forms of unpaid work. As Boudon (2003) writes:

RCT [rational choice theory] is disarmed when it comes to (a) phenomena involving noncommonplace beliefs, (b) phenomena involving nonconsequentialist prescriptive beliefs, and (c) phenomena that bring into play reactions that do not, by the very nature of things, spring from any consideration based on self-interest. (pp. 9-10)

There are several problems with explaining phenomena such as caregiving from the perspective of rational choice theory. From a sociological point of view, actions can be rational, not only in balancing costs and benefits, but in accounting for actions with ‘good reasons’ (Boudon, 2003; Goldthorpe, 2016). Rational choice theory in its strictest form falls short of doing this alone and should be supplemented by other theoretical perspectives that allow for actions based on aims other than instrumentalism and cost-effectiveness.

One example of rationality with a broader set of aims is provided by Weber (1978), who distinguished between instrumental and value rationality. Actions based on instrumental rationality accord with the rational choice framework referred to above. Such rationality is ‘determined by expectations as to the behavior of objects in the environment and of other human beings; these expectations are used as “conditions” or “means” for the attainment of the actor’s own rationally pursued and calculated ends’ (Weber 1978, p. 24). This is the case if the

employed worker works for a wage and not the work itself. Action based on value rationality is ‘determined by a conscious belief in the value for its own sake of some ethical, aesthetic, religious, or other form of behavior, independently of its prospects of success’ (Weber 1978, pp. 24-25). Both unpaid caregiving and volunteering can be explained on the basis of value rationality, if not motivated by a calculated gain from the action, but because ‘it is the right thing to do’.

The examples above support the argument that the difference between paid and unpaid work is that the first is strategic, while the second is driven by altruism. However, this is a simplification and it is not true that paid work is only motivated by a wage while unpaid work is free from exchange motives (Silverstein et al., 2002). For example, care work, whether paid or unpaid, can be described neither as only ‘instrumental’ nor ‘value rational’ but has both a cognitive and emotional dimension as captured in the concept of ‘rationality of caring’ (Wærness, 1984). Both paid and unpaid care work can be motivated not only by feelings of love but also by a feeling of duty (Finch, 1989; Wærness, 1984). Moreover, Folbre and Nelson (2000, p. 131) state that the dualism between self-interest and altruism should be bridged by explanations of care work that include responsibility.

The next section goes a step further into the development of motivations for caregiving within family relationships, as two of the papers in this thesis focus on informal help and care within the intergenerational relationship between adult children and their parents.

Motivations for unpaid work within intergenerational relationships

The sociological research on intergenerational relationships suggests different motivations for help and caregiving, such as normative and affective commitments, in addition to reciprocity (Leopold et al., 2014). Normative commitments express norms of family responsibility that can be prescriptive in obliging family members to provide care for each other (Bengtson & Roberts, 1991). Family obligations can be expressed both as *general* perceptions of family responsibility, often culturally shared in a social context (Cooney & Dykstra, 2011), or *personally* felt obligations or motivations (Stein et al., 1998; Stuifbergen et al., 2010). An example of the first is a filial responsibility norm that ‘reflects the generalized expectation that children should support their older parents at times of need’ (Gans & Silverstein, 2006, p. 961). Here, filial responsibility is conceptualised as a moral imperative. Qualitative research has shown that responsibility for parents can also be framed as a personal choice but then focusing on internal motivations associated with love, affection or relationship quality rather than external obligations (Funk, 2015; Stuifbergen et al., 2010). This also accords with more general theories

of individualisation emphasising that within family relationships today, the tie between adult children and their parents is largely ‘self-chosen’ rather than obligatory, with commitments based on relationship quality rather than on (general) obligations (Beck & Beck-Gernsheim, 2002; Giddens, 1992, pp. 96-98).

Motivations for caregiving can also be based on exchange and reciprocity, which are not explicitly studied in the papers of this thesis. However, exchange motives can be mixed in with the motivations mentioned above. The exchange perspective is not necessarily opposed to theories of moral commitments or perceptions of relationship quality. Sociological theories of intergenerational relationships focus on understanding reciprocity from a life-course perspective and not as immediate exchange. Silverstein et al. (2012) argue that parents invest in their children’s commitment to secure their help in the long term by socialising them into the ‘moral capital’ of filial obligation. Nevertheless, there is no clear evidence of reciprocity in terms of delayed reciprocity or ‘paying back’ being a central motivation for caregiving from the perspective of adult children (Funk, 2012). According to Finch, such reciprocity is not actively promoted from the parents perspective either: ‘... it seems quite common for parents to continue to be net givers of gifts throughout their lifetimes without any real pressure on children to pay back an equivalent amount’ (Finch, 1989, p. 240). Funk (2012) showed in her analyses of qualitative interviews that a more abstract form of reciprocity framed as a ‘return of love and affection’ was preferred by the adult children over the more calculated ‘delayed reciprocity’.

A resource perspective on unpaid work

Both participation in unpaid work and its association with paid work are unequally distributed among individuals in society. From a sociological point of view, it is also important to understand other perspectives on people’s engagement in various activities than their expressed motivations and commitments.

The resource perspective formulated by Wilson and Musick (1997a) considers how people’s opportunities and motivations for unpaid work are shaped in social processes. They argue that engagement in formal and informal unpaid work depends on individual resources or people’s *capital* of various kinds. *Human* capital is defined as individual resources such as skills, health or education, which also provide qualifications for paid and unpaid work. *Social* capital is the resources that people can access in their social network through social connections and relations. Finally, people’s motivations or ‘taste’ for participation in unpaid work are related to

their *cultural* capital (Wilson & Musick, 1997a). Wilson and Musick (1997a) argue that informal helping and formal volunteering are differently related to these forms of capital.

How human, social and cultural capital are associated with participation in unpaid work can be exemplified by the role of gender in the selection of caregivers and volunteers. In general, women have been shown more often to become caregivers than men, not only in child rearing but also in informal eldercare (Bauer & Sousa-Poza, 2015; Grigoryeva, 2017; Kotsadam, 2011), but gender differences in formal volunteering have traditionally been reversed with more men participating than women (Boje et al., 2019). According to Wilson and Musick (1997a) gender effects on volunteering and informal helping are largely indirect, as much of the gender differences can be explained by the capital people have accumulated.

From a human capital perspective, participation in unpaid work is linked to the individual resources that qualify volunteers for different activities. Gender differences in formal volunteering can to some degree be explained by heterogeneity in human capital such as being in good health, in addition to higher education and income (Fladmoe et al., 2018; Wilson & Musick, 1997a). Wilson and Musick argue that human capital is less relevant to informal helping than to formal volunteering. However, it can be argued that people—often women—who are trained in health and social work occupations, are better qualified to provide informal help and care work.

The social capital perspective focuses on people's access to resources through their social network. Women have traditionally been described as the families' 'kin-keepers' (Herlofson, 2013; Rosenthal, 1985). Because women have often developed closer relationships in the family and social network, while men have closer connections to their work, this may also explain gender differences in unpaid work. For instance, daughters often develop more intimate relationships with their parents, especially within the daughter-mother tie, reinforcing the primacy of daughters as caregivers (Leopold et al., 2014). Einolf (2011) argues that the importance of men's social capital gained through their employment and other formal social networks provides them with important social resources for (formal) voluntary engagement.

According to Wilson and Musick (1997a), what is considered valuable behaviour is shaped by people's cultural capital. For instance, it has been argued that women report more help-oriented values than men and that the moral responsibility for caring for others is more important to women because they have 'a different voice' of moral reasoning than men (Gilligan, 1982). Such gender norms are reproduced by the different role expectations that socialise men and

women and propels behaviour in accordance with their gender category (Henz, 2021; West & Zimmerman, 1987).

Wilson and Musick's resource perspective shows not only that gender differences can be theoretically related to various forms of capital, but also illustrates how people can take different routes to participation in informal help and care and volunteer work based on the structure of their capital.

Competition and complementarity between paid and unpaid work

Of interest in this thesis is not only explanations for engagement in unpaid work but also the *association* between unpaid and paid work. 'Competition' and 'complementarity' are competing theories for the link between them. They draw on theory from both economic and sociological traditions.

In economic terms, engagement in different activities could be explained by calculations of the cost of time spent. Here, the theoretical assumption is that if different activities compete for individuals' time, energy and/or commitment, starting a new activity is likely to require a reduction in participation elsewhere, whereas quitting an activity leaves more room for other types of engagement (Michaud et al., 2010). According to the neo-classical tradition, an explanation for gender differences in unpaid work is that women have weaker attachment to the labour market than men and thus lower *opportunity costs* associated with caregiving (Becker, 1965; Carmichael & Charles, 2003). The economic cost of caregiving, in terms of a reduction in earnings, is assumed to be lower for low-skilled, low-paid, part-time workers and those already unemployed, and women are more often represented in these groups. According to this framework, women are more likely to reduce their labour market participation because of care responsibilities than men, simply because they incur lower costs from doing so.

The role perspective provides explanations for both competition and complementarity from a sociological perspective. Roles are the socially defined expectations of a person occupying a social position (Merton, 1957). When people have several roles, such as daughter, mother, volunteer and employee, theories indicate a competing relationship between the associated activities, but the roles may also complement each other.

A competing relationship could be the outcome of 'role overload' or 'role strain' forcing people to choose between activities to manage conflicting role demands and obligations (Goode, 1960). Consequently, engagement in one activity decreases the likelihood of engagement in others. Conflicting norms and role expectations associated with social positions may also be the source

of *ambivalence* (Merton, 1976 [1963]). Within theories of intergenerational relationships, the ambivalence perspective has been proposed as an alternative approach to theories that state that such relationships are characterised by either solidarity or conflict (Lüscher & Pillemer, 1998). Ambivalence occurs when countervailing positive and negative aspects are experienced in the same social relationship. Connidis and McMullin (2002) argue that ambivalence is not an individual feature but a result of contradictions in the social structure, which restricts the agency of individuals according to their social position. They use men's and women's experiences of different demands and possibilities in work and care as an example. Women can experience more ambivalence in the work–care nexus because of their commitments, and ultimately take responsibility for caregiving, while men typically have a 'legitimate' excuse because of their strong attachment to paid work (Connidis & McMullin, 2002, p. 562; Finch, 1989). These are examples of how the outcome of a competing relationship between paid and unpaid work differs for people according to their social position and the role expectations associated with that position.

The complementarity perspective, on the other hand, focuses on engagement in one activity increasing the likelihood of engagement in others. A positive association between paid and unpaid work is a probable outcome if involvement in one activity increases the opportunity or motivation to participate on other arenas, referred to as 'role extension' (Hank & Stuck, 2008; van der Horst et al., 2017). According to the role accumulation theory, multiple roles can provide people with privileges, statuses, resources, and personal enrichment (role enhancement) (Sieber, 1974), and have positive effects on the well-being (Rozario et al., 2004). One role can also provide people with social contacts that increase the opportunity to engage in other roles that can be exemplified by the social capital perspective above (Wilson & Musick, 1997a, 1997b). Instead of multiple activities being in conflict, it is more the case that activity breeds activity (Marks, 1977) and, consequently, leaving one activity is associated with withdrawal from other activities.

A life-course perspective on paid and unpaid work

Paid and unpaid work are related to processes that have been evolving over time, such as the construction of identity and negotiations of roles and commitments within family relationships which takes place—or begins—long before the events of interest. These processes are also structured by the resources people have at hand. The life-course perspective, which is guiding the empirical studies of this thesis, has proven fruitful to understand such processes.

The life-course perspective offers several concepts that are useful to understand current adjustments in caregiving and labour market participation in light of choices and practices made earlier in life (Elder et al., 2003): *Trajectories* are sequences of roles and experiences, e.g. work and caring careers. These trajectories are made up of *transitions*, or changes in state or role. Examples of transitions relevant to this thesis include becoming a caregiver or retiring from paid work. *Pathways* are trajectories followed by individuals and groups through society (Elder, 1994 p. 5). This means that life choices are not made in isolation but follow a path. Because life courses are structured by gender, age and class, men and women of different birth cohorts and classes may approach paid work, caregiving and volunteering in later life with different resources and motivations because their pathways have been formed by different opportunities and constraints throughout their lives.

The opportunities and constraints in individual life trajectories are also shaped by transitions in the lives of others as well as expectations that have developed over time within relationships (Dykstra & Hagestad, 2016; Finch, 1989). This is captured in the concept of *linked lives*. The concept of linked lives captures life courses being interconnected, especially within the family, implying that individuals' life paths may be influenced by choices, events and transitions of others (Elder et al., 2003). As Finch (1989) argues, we cannot predict whether a person will provide help and care when their parents need it based only on their social position in the family, such as a daughter or spouse. The relational perspective of Finch (1989) illustrates that 'the proper thing to do' (p. 142) is negotiated within families over time. Obligations and duties are distributed through 'silent negotiations' within families, as Finch describes.

Commitments arrived at are not necessarily a private matter between two parties. They may be well understood in the kin network as a whole, so that when the situation actually arises where, for example, an elderly person needs to be cared for, it is 'obvious' to everyone that a particular child (of course usually a daughter) will be the person who will do this. (Finch, 1989, p. 181)

The concept of 'developing commitments' illustrates that those who enter a caregiver role feel increasingly responsible for providing further help and care (Finch & Mason, 1993). From this perspective, the expectations that men and women in the family experience, and how they balance care responsibilities with other commitments such as paid work, are results of negotiations conducted over a long time span.

Building on the life-course perspective, *continuity* theory emphasises how activity in older age depends on earlier activity patterns. People adapt to ageing by taking part in activities that confirm a sense of continuous self-identity across different social domains (Atchley, 1989). Continuity can be within the same activity, meaning that people engaged in an activity are likely to remain engaged (Mutchler et al. 2003) and maintain continuity in the sense of leading an active life in general. This implies that if a trajectory is interrupted by events such as a retirement transition, the lost activity may be substituted by another one (e.g. volunteering) (Mutchler et al., 2003; van der Horst et al., 2017).

The life-course perspective has inspired research in the North American tradition, taking a social psychological approach with a main focus on the micro and meso level (e.g. Elder et al., 2003). Furthermore, thus far this theory chapter has focused on understanding behaviour from the micro-perspective of the individual actor in the context of the family (the meso level). However, the understanding of paid and unpaid work behaviour is also conditioned by the societal context. The European research tradition has focused more on the importance of context in the structuring of life courses, emphasising how social policies affect and shape transitions and pathways across the life course (Hagestad & Dykstra, 2016). Welfare policy structures the life course into stages and can be a buffer against risk situations in different phases of life and moderate the timing and duration of risks from a long-term perspective (Leisering & Leibfried, 1999). Examples include education and retirement pensions, which have created ‘welfare classes’ such as students or pensioners. Moreover, the transition into the informal caregiver role depends on the policy context because welfare policy provides rights and enables individual participation in both paid and unpaid work. Welfare policy can also moderate interdependency between linked lives: a point to which I return below.

The context of work

The context is important to understand different patterns of unpaid work and how such work is related to participation in paid work. From a comparative perspective, welfare states differ according to the distribution of welfare services, the organisation of the labour market and the role of the family and civil society in welfare production (Ervik, 2019; Esping-Andersen, 1990; Esping-Andersen et al., 2002). In this section, I present theoretical perspectives that contrast different models of welfare organisation and their consequences for action at the individual level. In the following, the emphasis is more on the implications of the context of informal help and caregiving than for voluntary work, because informal care is studied throughout all three papers of this thesis. Dependency, independency and interdependency between adult family

members, as well as obligations and duties, depend on context. Duties can be explicit and formulated as legal obligations, or implicit in the case of a lack of politics. They can also be culturally shared normative expectations. I discuss how autonomy and agency in paid and unpaid work will depend on how these issues are balanced.

Welfare state context

According to Esping-Andersen's classification of welfare regimes in *The Three Worlds of Welfare Capitalism* (1990), Norway, together with the other Scandinavian countries, is classified as 'social-democratic', characterised by de-commodification of social rights and universalism (Esping-Andersen, 1990). These principles distinguish the social-democratic model from 'liberal' and 'corporatist' welfare regimes. The high level of de-commodification allows people to opt out of the labour market without falling below an adequate standard of living or becoming dependent on family or others (Esping-Andersen, 1990, 1999). The principle of universalism is the guiding principle in the allocation of benefits and services in Scandinavia, often contrasted with residualism and selectivism, whereby benefits are targeted to a specific group based on means testing or merit (Anttonen & Sipilä, 2012; Kildal & Kuhnle, 2007, pp. 13-14). It is important to the universalism principle in a social-democratic welfare regime that the level and quality of services and benefits is relevant to the middle class, thereby legitimating high public spending on welfare for large shares of the population (Esping-Andersen, 1990, p. 27).

Because universal access to high-quality services depends on high employment rates, which in turn contribute to the financing of welfare through taxes, employment for as many people as possible is not only an important premise but also the result of the socio-democratic model. Social care *services* in particular have an important role in facilitating personal autonomy and independence both for family care providers and receivers, because such services enable participation in paid work (Anttonen & Sipilä, 1996), while payments, in terms of 'cash for care', are more often used as a substitute for work, especially for low-paid women (Dykstra & Hagestad, 2016). The 'fusion of welfare and work' contributes to comparatively high levels of female labour market participation, and this is why the Norwegian welfare state has been labelled a 'women-friendly welfare state' (Hernes, 1987). Women's participation in paid work has been enabled by welfare services taking responsibility for caring for those otherwise dependent on family care, like the youngest, oldest and people with disabilities (Anttonen & Sipilä, 1996; Esping-Andersen, 1990, pp. 27-29).

Esping-Andersen (1999) introduced the concepts of *familialism* and *de-familialisation* to describe how policy assigns care responsibilities to the family and the welfare state and the implications for participation in the labour market. De-familialisation is characterised by care services and financial transfers that lessen families' care responsibility and promote individuals' independence, whereas familialism typically lacks any alternatives to family care and restricts the opportunity for family carers to gain economic independence through work.

The degree of familialism and de-familialisation in social policy shapes *interdependence* within families. Here, interdependence denotes lives that are shaped by events and transitions in the lives of other family members or what I previously have referred to as 'linked lives'. Interdependence is shaped both through legislation and policies. As Dykstra and Hagestad (2016) argue, the distinction between familialisation and de-familialisation is about 'the extent to which welfare states impose *reliance* on family members ("familialisation") or enable individual *autonomy* ("de-familialisation")' (Dykstra & Hagestad, 2016, p. 57). Legislation can impose interdependence directly, for instance by obliging parents to provide for their children, even after they reach the age of majority, and for adult children to provide financially for their parents (Saraceno & Keck, 2008).

The degree of de-familialisation in policy depends on the type of support provided. Both Saraceno and Keck (2010) and Leitner (2003) emphasise whether public care is provided through services or financial transfers. Systems where families receive financial transfers, for instance cash transfers or paid leave to support their members, is named 'supported familialism', while 'optional familism' typically makes people choose between receiving services (de-familialisation) or financial support (supported familialism). Policy systems characterised by 'familialism by default' have neither financial support for families providing care, nor publicly provided care. According to the theories of familialisation and de-familialisation presented above, one could assume the level of informal family care to be rather low in Norway, as a representative of the de-familialised model. However, high levels of formal services and more autonomy in paid and unpaid work do not necessarily result in the absence of, or reduced family solidarity.

There are two competing hypotheses about the dynamic between the family and the state in provision of care: one suggesting substitution and the other complementarity. The substitution hypothesis assumes that care provided by the state replaces family care—or the other way around (Lingsom, 1997). The other hypothesis assumes that the state and the family have complementary roles in care provision. Complementarity can take the form of specialisation—

whereby family and public services perform different tasks (Brandt et al., 2009)—or when publicly provided support encourages rather than discourages family care (Chappell & Blandford, 1991).

A number of studies have supported the complementarity hypothesis by showing that the generous public care services available in the Nordic countries are associated with *more* family caregivers but less intensive help and care. In countries with fewer public care services, the overall number of family caregivers is lower, but more caregivers provide frequent personal care (Brandt, 2013; Brandt et al., 2009; Strauss & Trommer, 2018; Verbakel et al., 2017). This contrasts with what is called ‘the moral risk’ of a generous welfare state (Wolfe, 1989), which implies that families are ‘crowded out’ of its care function. The opposite view is rather that when the basic needs of family members are taken care of, the family is supported in its function as a safety net, providing social care, practical and emotional support more flexibly than the public welfare services (Hagestad, 1996). When the state takes some responsibility for family members, people are freed ‘to develop closer and more supportive relationships with their kin’ (Finch, 1989, p. 243). Finch’s point is that commitments to care develop between real people who are related to each other over time and cannot be imposed by policies aimed at reinforcing a moral responsibility in the family.

Similar arguments can be applied to volunteer work. The institutional division of labour between the state, market and the family in the production of welfare also has implications for the role played by the voluntary sector in welfare production, as well as for the type of work performed by volunteers (Principi et al., 2014; Warburton & Jeppsson Grassman, 2011). In Norway, the voluntary sector was traditionally central in the production of welfare, but this responsibility was later transferred to the state followed by a growth in professionalised welfare services (Ervik, 2019). With basic needs covered by the welfare state, it is argued that people can follow their personal interests and choose activities more out of motivation than by necessity (Amilon & Larsen, 2021; Henriksen et al., 2019). This argument may explain why volunteer work in Scandinavian countries today is mainly performed in the culture and leisure sector and why the availability of opportunities and willingness to engage in volunteer work is rather high in Scandinavia (Henriksen et al., 2019; Warburton & Jeppsson Grassman, 2011).

The high participation rates in both paid employment and volunteer work, as well as informal help and care, illustrate the point that the competitive relationship between paid and unpaid work may be less salient within the Scandinavian countries than in others (Jensen, 2014; Strauss & Trommer, 2018; Warburton & Jeppsson Grassman, 2011). The suggested explanation is that

when unpaid work has more of a voluntary character, and that it is not as all-encompassing as in countries characterised by for instance ‘familialism by default’, it could be expected that the competing relationship between paid and unpaid work is less urgent. Another explanation of a less competing relationship between paid and unpaid work, is that not only differences in welfare policy organisation but also the normative foundation for popular views of welfare production responsibility may play a role.

Welfare policy is created based on existing norms and values of the fair distribution of welfare in society but can also affect actions through its influence on both norms and values and on utility calculations (Kildal & Kuhnle, 2007). A typical division in family norms is between the familialistic countries of southern Europe and the more individualistic countries of northern Europe (Reher, 1998). Just as family policy varies across countries, both adherence to responsibility norms (Daatland & Herlofson, 2003; Daatland et al., 2011; Lowenstein & Daatland, 2006) and the effects of norms and obligations on caregiving patterns vary across contexts (Daatland & Herlofson, 2003; Haberkern & Szydlik, 2010; Verbakel, 2018). However, there are contrasting hypotheses about how responsibility norms affect the association between care and paid work (Bolin et al., 2008; Kotsadam, 2011). While some suggest that weaker norms of filial responsibility in a culture make it more optional to provide care to parents, so the effects of caregiving on employment are lower (Kotsadam, 2011), others argue the converse. Bolin et al. (2008) suggest that in a context where parental caregiving breaks with the dominant norm, caregivers will experience less acceptance and higher employment costs from providing care.

Change in welfare context

Participation in paid and unpaid work is related both to the functional organisation of welfare production and to *change* in this ‘welfare mix’. According to Esping-Andersen et al. (2002), the three welfare-producing pillars—markets, families and government—are mutually interdependent. Growth in one domain may have second-order consequences in the other two. In the socio-democratic model, a strong emphasis on the government pillar in both childcare and eldercare is related to high labour market participation among both women and men. When the government pillar is challenged by population ageing, failure by government to produce welfare may be compensated for by the family or the market, or it may remain unsolved. If a ‘re-familialisation’ takes place (i.e. if families must take greater responsibility for care needs), it can obstruct the goal of extended working lives. On the other hand, increased labour market participation may also hinder families’ ability to meet care needs.

Fraser (2017) argues that the misrepresentation of reproductive activities in the economic production that characterises contemporary capitalism, together with the development of marketisation and austerity in social services, has led to a ‘crisis of care’. According to Fraser, the ‘dual earner’ family, which is the new norm in many developed countries, can respond to this crisis by either paying for services in the market or by pulling out of labour to address rising unmet care needs. Both are examples of how a change in the welfare pillars may be compelled.

The voluntary sector is also part of the welfare mix as a social institution providing welfare, together with the family, state, and market (Ervik, 2019 pp. 112-118; Principi et al., 2014). Therefore, a change in the welfare mix can have consequences for both the demand for volunteer work as well as the availability of volunteers (Principi et al., 2014, p. 10). Their availability may depend both on demands for participation in the labour market and in the family domain. In addition, unmet welfare needs can also generate new fields of voluntary work.

This thesis studies neither paid and unpaid work in *contrasting* welfare systems, nor whether and how participation in paid and unpaid work is affected by a *change* in the welfare mix within the Norwegian welfare state. Nevertheless, the policy responses to population ageing referred to in Chapter 2 illustrate that the context is not static, but subject to institutional change. Therefore, the interpretation of the results and their implications will recognise this fact.

4. Previous research

In the following section, I present previous research on the association between paid work and informal care and voluntary work, respectively, with a focus on the research gap in the Norwegian context.

Informal care and paid work

Research on issues regarding the combination of work and family care have traditionally focused more on how parents with young children combined paid work and care than on care responsibilities in the second half of life (Kröger & Yeandle, 2013; Phillips & O'Loughlin, 2017). For middle-aged and older individuals, caring for grandchildren or for spouses, parents, and other adults in the family and social network is more likely than caring for one's own young children, (Bertogg et al., 2021). The bulk of previous research on the association between paid work and informal (family) care in the second half of life has focused on care for older parents (-in-law), but also care for other kin such as grandchildren and partners. Caregiving for partners is studied less often among working carers because caregivers for partners are more likely to be past working age and when it is studied it is more often in relation to retirement (Carr et al., 2018; Moussa, 2019).

Results from research on the association between informal care and paid work have shown negative associations between the two activities in later life (Choi et al., 2007; Lilly et al., 2007; Van Houtven et al., 2013), but the results differ depending on the choice of study sample, the measures and methods used, and the context of the study (Moussa, 2019).

Many studies have been conducted on the association between employment and caregiving for women only. When studies have included men, they have been shown to experience fewer negative effects from caregiving than women (Carr et al., 2018; Lee & Tang, 2015). This finding has been related to the type of care that men and women usually provide. Whereas women more often provide intensive personal care, men are more likely to be involved in less demanding care tasks, and several studies show that the effect of caregiving on employment is most negative for intensive caregiving (Bertogg et al., 2021; Jacobs et al., 2017; Kotsadam, 2012; Lilly et al., 2007; Moussa, 2019). The character of the informal care provided and its effect on labour supply is also moderated by the welfare policy context. Overall, findings indicate that the effects of caregiving on paid work are weaker in the Nordic countries, typically explained by the high level of formal care available (Kolodziej et al., 2018; Kotsadam, 2011;

Spiess & Schneider, 2003). Hence, the number of caregivers is larger in countries with generous long-term care provisions, but the care provided is often less intensive (Verbakel, 2018).

Associations between informal care and participation in paid work are not absent in Norway but previous research indicates that informal caregiving is related to the amount of paid work provided, rather than employment status. Previous research based on data from NorLAG (Wave 2) has indicated that daughters providing care are more inclined to work part time than full time (Daatland et al., 2010; Herlofson, 2015). Herlofson (2015) showed that grandparents who worked part time were more likely to take care of grandchildren regularly than either those working full time and those not working.

Gautun and Hagen (2010) found that few stopped working because of their care responsibilities but that working carers in Norway report irregular work attendance related to caregiving. Using accumulated holidays was the most common strategy but leave of absence or sick leave days were also used to make time to care (Gautun and Hagen, 2010, p. 404). A recent Norwegian survey illustrates the same pattern: 32 per cent of (employed or student) informal caregivers² reported that their work or studies were affected by their care duties. Of these, 31 per cent had reduced their work hours, but only four per cent had quit their jobs as a consequence of being a caregiver. Thirty-eight per cent reported that their caregiver role had affected their job performance in other ways, such as reduced effectiveness or achievement, more distraction, concentration issues and stress. (Opinion, 2021). Moreover, in a study of working carers in Sweden, Ulmanen (2016) found that 8.8 per cent of daughters and 7.0 per cent of sons reported having reduced their work hours, left work or retired earlier than planned because of providing care for their parents. Consistent with the Norwegian studies, larger proportions of caregivers experienced attention problems (27.3% women, 15.7% men) or other problems with work attendance (10–14%).

Several studies investigating the association between informal caregiving and labour market outcomes have raised the problem of reverse causation and the challenge of disentangling the proposed causal effect of providing care on labour market participation from selection into caregiving (Heitmueller, 2007; Kotsadam, 2011, 2012). Some contributions have approached the question using quasi-experimental designs. One example is Kotsadam (2012), who used instrumental variables with cross-sectional NorLAG data to study the causal effect of

² The survey comprised 32 per cent children (aged 18 + years), 11 per cent parents, 10 per cent partners, 14 per cent friends/neighbours/colleagues and five per cent other relatives of a person in need of help of care. Needs are assessed as physical or mental illness, disability, drug addiction or impairment because of old age.

caregiving on work. He found that being a caregiver had no negative effects on the probability of being employed, earnings or hours worked, except for intensive caregivers who had a reduced probability of employment (Kotsadam, 2012). A study by Fevang et al. (2012) used the death of a lone parent as a proxy for higher caregiving needs in the period prior to the loss of the parent and found a drop in employment, a small but significant negative effect on earnings and an increasing risk of claiming social benefits around the parent's death year/month. However, as their analysis is based on registry data, they had no access to information on actual care provision, so the possibility cannot be excluded that the effect was caused by factors other than caregiving (see Paper III, which builds on this article).

Although it has been suggested that there are fewer negative consequences of caregiving in Nordic countries, informal caregiving may have costs that are not captured by the employment statistics. For instance, absence from work owing to sick leave is higher among informal caregivers in Norway (Fevang et al., 2012; Ugreninov, 2013). In municipalities where levels of care services have increased over time, a decline in sick leave among daughters with older parents was detected, indicating indirectly that caregiving had negative effects on participation in paid work (Abrahamsen & Grøtting, 2019; Løken et al., 2017). It is unclear from the results cited above whether care has negative associations with health outcomes or whether sick leave is used to provide care for others when lacking alternative arrangements, as suggested by Gautun and Hagen (2010). Hansen and Slagsvold (2015) found negative effects of providing personal care for a partner or resident parent on psychological well-being in Norway, but only among women who were *not* working full time. They argue that caregivers working full time may experience a gain from multiple roles in line with the role enhancement theory but cannot reject the possibility of a selection effect whereby those who experience positive effects of caregiving remain in full-time work.

Overall, the previous research from the Norwegian (or Nordic) context, referred to above, shows negative associations between informal caregiving and hours worked, but a weaker association with the probability of working. Because of the use of cross-sectional data in much of this research, there is a lack of research on how caregiving and paid work are related over time in the Norwegian context (as in Paper I and III).

Motivations for informal care

The importance of motivations, such as filial responsibility norms and relationship quality for unpaid work has been explored in several studies and they differ in their conclusions regarding whether normative or relational explanations are the most important (See Paper II for a more

detailed review of this literature). The association between motivations and caregiving patterns also differ between countries with different welfare policies (Cooney & Dykstra, 2011; Lowenstein & Daatland, 2006). For instance, Lowenstein and Daatland (2006) found that filial norms were more prescriptive in southern European countries (e.g. Spain) than in northern countries (e.g. Norway), where normative solidarity was expressed in more general terms and open to negotiation.

Neither the importance of relationship quality for caregiving to parents nor a comparison of which of the general filial norms and the personal assessment of relationship quality that are most important have been studied longitudinally in the Norwegian context up to now.

Volunteer work and paid work

Volunteering among seniors has shown both a negative and a positive relationship with paid employment. Hank and Stuck (2008), Gessa and Grundy (2017) and Mutchler et al. (2003) all conclude that the tendency to volunteer increases after retirement, thus implying a negative relationship. Others find volunteering to be positively associated with paid work in later life (Strauss, 2021; van der Horst et al., 2017), but this mainly seems to hold for part-time work (Carr & Kail, 2013; Mutchler et al., 2003). Carr and Kail (2013) argue that volunteering is compatible with continuing paid work on a part-time basis after leaving full-time work, both because paid activity can provide social resources facilitating engagement in other (unpaid) activities, and because those who continue in paid employment may prefer being active in general, which also makes them more likely to volunteer.

Research on the association between volunteer work and paid work in Norway has also shown contradicting tendencies. Volunteering for an organisation is positively associated with being in paid work, although in the 40–62 age group, those who make the most comprehensive volunteering contribution to the organisations have a lower probability of employment (Wollebæk & Arnesen, 2012). Hansen and Slagsvold (2020) also showed that few in the 53–71 age group are willing to make a major commitment to volunteering, but sporadic volunteering, which is easier to combine with other activities such as paid work, is common.

The previous research on volunteering in Norway is largely based on series of cross-sectional surveys conducted between 1998 and 2017 (Arnesen, 2017; Fladmoe et al., 2018). There has been little research in Norway focusing on the association between volunteering and paid work longitudinally, especially on how the transition to retirement is related to volunteering among individuals approaching pensionable age. One exception is Solem (2012), who found that early

retirement was associated with increased formal volunteering, while retirement after the age of 67 was not associated with increased volunteering compared with continued work. Solem's study used NorLAG data from 2002 and 2007, which was before the implementation of the pension reform, and there have been changes in both the incentives for retirement and actual retirement patterns since then. Using data from after the pension reform, this thesis contributes a longitudinal study of the association between stopping paid work and volunteering and the importance of previous engagement in voluntary work for continued participation in late working life and after retirement (Paper I).

5. Data and methods

This thesis study predictors and outcomes of unpaid work from a life-course perspective, with a focus on the association between informal care and paid work. This chapter describes the data used in the empirical papers (the NorLAG study) and the operationalisation of the key variables (unpaid work, motivations for unpaid work, and paid work). It concludes with a discussion of descriptive and causal analyses and the strengths and limitations of the analytical strategies chosen for the empirical papers.

Data

The three empirical papers are based on data from the Norwegian Life course, Ageing and Generation Study (NorLAG). NorLAG is a longitudinal study following individuals and their families throughout the second half of life, from midlife into old age (Veenstra et al., 2021).

Three survey waves have been conducted so far (2002, 2007, and 2017), including computer-assisted telephone interviews (CATI) and self-administered questionnaires linked to register data. In all three papers, information from the two last waves of the survey (2007 and 2017) is used. Wave 2 is considered nationally representative owing to a large refresher sample (N = 9238 aged 40–85 years, response rate 61%), and in Wave 3, 68 per cent of earlier NorLAG participants responded (N = 6099, aged 50–95 years). In both waves, three out of four CATI respondents returned the self-administered questionnaire. The survey data were linked to annual register data between the years 1980 (1967 for information on earnings) and 2017. The register data include information on earnings, social security benefits and pensions, in addition to family members (Veenstra et al., 2021).

For the purpose of this thesis, the NorLAG study offers a number of advantages. First, it is the only large-scale and nationally representative study that follows individuals from midlife to older age longitudinally in Norway. Second, its link to annual register data takes the best of two worlds—the accuracy and completeness of data drawn from the registers and individuals' perceptions and evaluations from the survey data. In this thesis, this link is used to cast new light on previous findings from register studies. Third, its grounding in the gerontological literature and focus on people from midlife into older age are reflected in the many and relevant questions asked about this phase of life. Fourth, following the life-course perspective, it also considers the concept of linked lives and provides detailed information about close relatives such as parents and children, also this information linked to data from the registers.

The three papers use three different subsamples of the NorLAG study (see Table 1). Because information from Waves 2 and 3 is used in all three papers, the sample is restricted to participants in those years. The sample analysed in the first paper (Paper I) consists of people aged 62–75 years in 2017 which is when most workers in Norway may start to draw a retirement pension (provided they have enough earnings), while they also may accumulate pension entitlements if they continue in paid work. The sample is also restricted to respondents who completed the self-administered questionnaire ($n = 1666$). In the second paper (Paper II), only people who have a *living* parent in the third wave are included. The third paper (Paper III) is a study of a subsample of Wave 2 participants who *lost* a lone parent in one of the subsequent five years (according to register data). The two respondent samples for the two last papers therefore in principle do not overlap.

In most surveys, particularly longitudinal studies following the same people over time, a challenging issue is non-response and selection bias. In Paper I, two-thirds of the respondents aged 52–65 years in the nationally representative sample of Wave 2 participated in Wave 3 (when aged 62–75 years). The analytical sample in this paper, with its *additional requirement* that respondents complete the self-administered questionnaire in both waves, includes approximately 45 per cent of all 52- to 65-year-olds from Wave 2. When the entire Wave 2 sample (52–65 years) was compared with the analytical sample, the latter on average had a higher educational level (by an eight percentage-point margin), better self-reported health (six percentage-point difference) and were more often in paid work in Wave 2 (six percentage-point difference). For the tendency to provide informal help or formal volunteering, the differences were smaller and close to negligible. All in all, the selection bias was relatively modest, and should have no significant impact on the results of the analyses (see e.g. Hellevik, 2016).

In Papers II and III, the exclusion criterion was based on whether the respondents had a parent alive in Wave 3 or died after the second wave respectively. Because information about parents' status is only available from participants in Wave 3 it is not possible to compare them with counterparts who dropped out between Waves 2 and 3. It is probable that having a living parent is related to other characteristics of the respondent, as is dropout, but all respondents in these two papers had the same status with regard to their parents being alive. For the association between caregiving and paid work, we cannot reject the probability that those who shoulder a greater burden from paid or unpaid work dropped out and are not represented in the analyses. Such dropout may contribute to underestimation of a competing relationship between the activities. It is also possible that people who are more oriented towards prosocial values and

activities would respond to the survey because people who participate in follow-up waves of longitudinal surveys have also been found to be more likely to contribute to other socially valued activities (Abraham et al., 2009; Hermansen, 2018).

Overview data and variables

Table 1: Data and variables

Paper	I	II	III
Sample	Wave 2 and 3 respondents in the relevant age group who completed the self-administered questionnaire	Wave 2 and 3 respondents with at least one <i>parent alive</i> in Wave 3	Wave 2 and 3 respondents with a <i>parent who dies</i> in one of the five first years following Wave 2
Age	62–75 years in Wave 3	50+ years in Wave 3	40+ years in Wave 2
N	1625	2194	513
Data	Waves 2 and 3 (CATI and self-administered questionnaire)	Waves 2 and 3 (CATI)	Waves 2, 3 (CATI) and register data
Dependent variable	Unpaid work Wave 3: - Weekly informal help provision (including practical help, personal care and grandchild care) - Weekly formal volunteering	Unpaid work Wave 3: - Weekly help or care provision	Paid work: Earnings and employment measured annually before and after Wave 2
Independent variable in focus	Paid work status Waves 2 and 3	Filial responsibility and relationship quality in Wave 2	Unpaid work status: Monthly help or care provision in Wave 2 interacted with time to the parent's death (proxy for increasing needs for intensive care)
Recipient of unpaid work	Not defined	The respondents' mother/father	The respondents' lone mother/father

Operationalising unpaid work

The three papers do not use the same operationalisation of unpaid work. Whether the unpaid work is the dependent variable or the explanatory variable also varies (see Table 1). In the latter

two papers I concentrate on help and care for parents, while in the first paper I study provision of unpaid work in general, including formal volunteering.

Informal help and care are measured through several questions from the CATI. The questions were: ‘Have you within the last year regularly helped someone with personal care, like eating, getting out of bed, getting dressed, or go to the toilet (not including children)?’ and ‘Have you within the last year regularly given practical help to people that you don’t live with?’ For both provision of personal care and practical help, respondents had to specify, in responses to follow-up questions, whom and how often they had helped. In the first paper, informal help and care for all recipients were included, in addition to a question about grandchild care: ‘Approximately how often do you do the following ... look after grandchildren?’. Later in the interview, the respondent received specific questions about whether their mother and father needed help with daily chores and/or personal help. If a need was reported, the respondent received a question about whether he or she provided help to the parent and if so, how often. Information from these questions supplements the above-mentioned questions about help and care. In Papers II and III, all information about help and care for mother and/or father were combined into one variable indicating whether the respondent had provided at least weekly (Paper II) or monthly (Paper III) help or care to the parent in question (= 1) or not (= 0).

The intensity of the help and care provided is also important, and there are different measures of intensity. Degree of intensity depends on the kinds of tasks performed, the time required, the support frequency and the relationship within which care is provided. Here, frequency is used to identify care provided on a regularly basis, i.e. weekly or monthly. In Papers I and II, informal help and care is the dependent variable measured on a weekly basis, assuming that weekly help and care is more demanding and more likely to conflict with other engagements, such as paid work, than that provided less often. In Paper III, an indicator of monthly informal help and care is used. The interaction between this variable and a variable measuring time to the death of a parent is used as a proxy for increasing needs. The bound is set at monthly, but not more frequently, because the variable is used to identify a group of caregivers that are more likely to provide more intensive care when needs arise. The association with the dependent variables is then analysed several years before and after the measurement of monthly help and care under the assumption that the needs are greater in the final year of a parent’s life. For a more thorough discussion of the validity of this measure, see Paper III.

In Paper I, a broader concept of unpaid work than informal help and care is used, including formal volunteering as a second dependent variable. The measure of formal volunteering is a

single question in the self-administered questionnaire: ‘Approximately how often do you do the following ... Voluntary work for clubs/organisations?’. Those who answer ‘weekly’ or more often are given a dummy variable value indicating formal volunteering (= 1).

In Paper I, I do not conflate formal volunteering with informal help and care as one dependent unpaid work variable because there may be different mechanisms between these outcomes and the independent variables. One could argue that the same applies to practical help and personal care, as these are collapsed into the same variable in all three papers. The decision to collapse practical help and personal care (and in the third paper also care for grandchildren) into a general informal support variable was based on thorough consideration. One reason for the decision is that provision of practical help, and particularly personal care, is more of a choice in the Norwegian context because of the high levels of formal health services. Another reason is that relatively few people only provide personal care without also helping with practical tasks. If I had focused on the various kinds of support separately, associations with support that can constitute an important contribution and indicate informal care could be lost because separate analyses would not provide the whole picture.

Informal help given to ascending, descending and lateral relationships is also collapsed in Paper I. Bertogg et al. (2021) argue that help in these relationships should be studied separately. The decision to collapse informal help in all kinds of relationships into one variable was made because the sample size of help providers in each relationship is relatively small in the specific age group studied in Paper I.

Operationalising paid work

In Papers I and II, different measurements of paid work are used as independent variables. In Paper I, work status is measured through the following questions (asked in both 2007 and 2017): ‘Did you do paid work for at least one hour last week?’ and ‘If no, are you in paid work that you were temporarily absent from last week?’ An affirmative answer to either question is considered to indicate paid work. I distinguish between part-time and full-time workers in 2017 using a question on whether the respondents considered their work to be part or full time. Based on this information, I construct the following dummy variables: ‘Stopped working between 2007 and 2017’, ‘Not working in either 2007 or 2017’, ‘Working part time in 2017’ and ‘Working full time in 2017’. Most part-time and full-time workers in 2017 were also working in 2007. The few respondents (n = 24) who entered paid work between the two waves are included in the two latter variables depending on their work hours (part or full time) in 2017. Paper II also controls for employment in 2017, and full-time work represents the reference

category with one dummy variable indicating not employed (= 1) and other part-time work (= 1).

In Paper III, I use annual register data on earnings to evaluate the effect of time of a parent's death on earnings and a calculated indicator of employment. Annual records of pensionable earnings are collected by the Norwegian tax and income registers. Employment is measured as having annual earnings exceeding the basic amount (G) in the national insurance scheme, represented by a dummy variable where 1 indicates employed and 0 not employed. The annual earnings are standardised by dividing them by the amount representing one G for each observation year.

Operationalising motivations

Paper II focuses on two motivations—filial responsibility and relationship quality—both measured in 2007, 10 years before the measurement of the outcome variable (informal help and care to parents). Filial responsibility is based on agreement with the following statement: 'Children should take responsibility for providing care to parents if parents are in need'. The response was scored on a 0–10 scale, with 0 indicating 'strongly disagree' and 10 'strongly agree'. This is a general question, not referring to the individual situation of the respondent. The perceived relationship quality with the parent was measured by the following question: 'On a scale from 0 to 10, where 0 means 'Not satisfied at all' and 10 means 'Completely satisfied', how satisfied are you on the whole with your relationship with your mother/father?'. Neither of the questions specifically address caregiving but are used as indications of general and personal motivations that are theoretically associated with informal help and care. Both questions are also relevant in cases without a reported need for help or care and were asked of all respondents in the first interview in 2007.

Ethical considerations

I end this section with a note on ethical considerations made. The data collection was conducted by Statistics Norway in line with existing rules relating to official statistics and Statistics Norway (The Statistics Act, 1989). Study participation and linkages to public register data are voluntary and based on passive informed consent. The data are collected, organised and handled to protect anonymity and prevent the identification of individual respondents in line with the regulations on personal data (Veenstra et al., 2021).

I have also complied with the *Guidelines for Research Ethics in the Social Sciences, Humanities, Law and Theology* of the National Committee for Research Ethics in the Social

Sciences and the Humanities (NESH, 2016) to follow good scientific practice based on recognised research ethics norms.

Methods

The three empirical papers use observational survey data from the NorLAG study, in addition to register data (in Paper III), to analyse engagement in, and association between, paid and unpaid work in the second half of life. All three studies take a descriptive approach, and the results cannot be interpreted as causal relations without caution. However, the studies both suggest causal relations and investigate causal claims from other studies where data are available. In this section, I present the longitudinal design of the three studies. In the analyses with a binary dependent variable I use linear regression models, and this choice is also discussed before causal inference and the scientific value of descriptions.

Longitudinal analysis

The life-course perspective was presented in the theory chapter. More than a theory, the life-course perspective is a methodological framework that is used to study and interpret how events and transitions throughout life are ordered, integrated with other people's life courses ('linked lives') and how they depend on the context within which a life is lived. This perspective also guides the design of the empirical studies of this thesis.

In the three studies of unpaid work and its motivations and associations with paid work, I take into consideration the importance of timing and take the view that paid and unpaid work are related to processes that evolve over time. To understand how events and actions are related over the life course, characteristics measured several years earlier can be just as relevant as those measured simultaneously. In Papers I and II, the independent variables are measured in 2007, 10 years before the outcome variable. The variables are included in a regression model together with control variables that potentially confound the association between the independent and dependent variables. The fact that the consequences of life transitions can be traced several years after they occur, together with the concept of 'linked lives', is relevant to the design of the analyses in Paper III. This paper examines whether the 'event' of a parent's death and the associated caregiving measured in a survey conducted up to five years in advance, are related to the development in children's earnings and employment over time in that period.

All studies of concepts that change over time encounter the challenge of disentangling age, period and cohort effects, also called the age–period–cohort (APC) conundrum (Glenn, 2005). The association between unpaid and paid work could be related to processes that change over

time at both individual and societal levels. Such processes could be transitions associated with individual ageing (e.g. retirement) or policy reforms such as the Norwegian pension reform of 2011. When controlling for age (groups) in Paper I, I cannot distinguish whether new generations are more or less likely to undertake unpaid work (cohort effect) or whether there is a ‘retirement effect’ on unpaid work associated with the respondents’ age.

When I measure change in the dependent variable over time in Paper III, the APC problem is not only a question of interpretation, but also a technical problem because several variables of interest are colinear. Collinearity between age, time and cohort makes it impossible to include two of the dimensions in a regression model and let the third vary freely because $\text{Age} = \text{Year} - \text{Birth year}$. The problem is solved by recoding the variables so that they are no longer perfectly collinear (Mason et al., 1973).

Many studies using cross-sectional data point to the need for longitudinal data to answer further questions about causality and selection, because such data can differentiate situations in time. The studies in this thesis use longitudinal data but illustrate that even with longitudinal data, the issues of causation between the variables of interest are not necessarily resolved. There may be other processes going on simultaneously, and selection into different situations may have happened before measurement of the ‘explanatory variable’. Moreover, there are different views on what causation implies, and what the results from a study uncovering causal relationship can tell us, which are discussed in the section ‘Description and causal inference’ below.

A weakness of the investigations presented is their lack of continuous information about caregiving and volunteer activities, because unpaid work is only measured in the years 2007 and 2017. Thus, we know nothing about unpaid work in the intervening period. In addition, the time elapsed between the observations limits the types of analyses that can be conducted. For instance, it was not possible to conduct a ‘sequence analysis’ of caregiving patterns, which need more observations, with this data. Moreover, fixed- or random-effects models of the associations between change in activity variables over time would have benefited from more frequent measures to answer some relevant questions. Such methods were considered and conducted as sensitivity tests, but because of the two-wave structure of the data, the simpler models were preferred.

Linear probability models

In Papers I and II, the dependent variable is coded as a dichotomous indicator of whether or not the respondent provided unpaid work. In Paper III, the two dependent variables were dichotomous (employed or not), and log-linear (the log of standardised earnings).

For analyses with the binary outcome, the long-standing standard approach has been logistic regression (LR). For an even longer period, economists have preferred the linear probability model (LPM), which is increasingly making its way into the other social sciences. The main criticism of the logistic model is that the interpretation of log odds is problematic, not only because they show associations in relative terms that need to be converted into marginal effects to be meaningful but also because the estimates reflect unobserved heterogeneity that makes comparison across models or samples problematic (Mood, 2010).

In the empirical studies of this thesis, the choice of LPM over LR was mainly made for pragmatic reasons, as the results from LPM are easier to interpret and the predicted probabilities from the linear model are in practice identical to the average marginal effects estimated from LR. Furthermore, when fixed effects are included in Paper III, all observations without variation on the dependent variable are excluded from the analyses, and a large number of observations are lost, which among other consequences causes problems with model convergence using the statistical software.

Objections to the LPM have been that it can produce estimations out of range and heteroscedastic and non-normal residuals resulting in invalid standard errors and a misspecified functional form. However, these arguments have been shown to have little practical relevance (Angrist & Pischke, 2008 p.47; Hellevik, 2009) The LPM model is preferred in all three papers of this thesis, but additional analyses using LR have been conducted to ensure that the results and conclusions would have been no different if conducted using the alternative model.

Description and causal inference

Whether there is a competitive or complementary relationship between paid and unpaid work or selection into one or the other is a fundamental question about causal effects. In addition, the questions about the association between previous and subsequent motivations and engagements in unpaid activities basically concern causal relationships. The studies in this thesis take a descriptive approach towards these questions. Descriptive studies can establish social phenomena and be the starting point for further analyses. However, the concept of causality in

social research is also contested, and below I discuss the assumptions for making causal claims, the benefits and limitations of what are considered to be causal designs, and what a descriptive approach can add to their results.

There are several different conceptualisations of causation, and what we mean by it ontologically is the departure point for whether and how it may be studied empirically. According to the empiricist and philosopher David Hume (2007 [1777]), it is only through the observation of ‘constant conjunction’, when events of one type are always followed by another type of event, that we can reveal causation. In addition to such regularity, Hume characterised causation by temporal priority (first cause, later effect) and contiguity (events are placed next to each other in time and space). The first criterion fits well with the life-course perspective that guides the studies of this thesis, where the independent variable is measured before the dependent. The second criterion is more challenging. Contiguity between events is a problem, for example when we study the association between events from a life-course perspective. Here, we can imagine larger time spans between ‘cause’ and ‘effect’ than allowed for in the continuity criteria, as is the case between the waves of the NorLAG study discussed above.

In empirical social science today, *the counterfactual paradigm* is the dominant approach to causal inference. The idea of causation as counterfactual dependence suggests that if A had not been, B would never have existed (Hume, 2007 [1777]: Section VII, Part II, p. 141). The effect of A is the difference between B with the existence of A, and B without A. The central methodological problem in the counterfactual approach is that we cannot observe counterfactuals. This is solved with the *ceteris paribus* clause, which is the basis of causal inference within this paradigm. *Ceteris paribus* means that the effect of the cause is to be found when ‘all else is equal’: A causes B, *ceteris paribus*. A widespread strategy in standard statistical methods, like multivariate regression, is to specify and control for possible confounders. However, the possibility that unmeasured characteristics confound the associations, and the *ceteris paribus* situation is not obtained, cannot be rejected with this strategy.

The counterfactual approach uses the language of randomised controlled trials (RCTs) which are the gold standard of experiments in biomedical research. This approach’s promising solution to the *ceteris paribus* clause has also had a far-reaching impact on research in the social sciences. To reduce selection bias, people are randomly selected into groups, and one group is exposed to a ‘treatment’ or an ‘intervention’ and the control group is not. The difference in the dependent variable between the treatment group and the control group after the intervention is

interpreted as the causal effect of the independent variable—‘the average treatment effect’ (Goldthorpe, 2016 p. 105).

Transferred to social science, the variables of interest are most often impossible, or ethically unjustifiable, to introduce into experiments. Therefore, researchers have suggested several quasi-experimental methods to avoid the problem of spurious relationships. In RCTs, the control group represents a parallel, counterfactual world without the treatment. When only observational data are available for our questions, quasi-experimental methods use statistical techniques to create such ‘parallel worlds’ by identifying parts of the data that only differ with regard to the explanatory variable. One strategy is to compare situations where the status of interest is assigned by chance, in so-called natural experiments. Another strategy is the fixed-effects model where we follow individuals over time to explore whether a change in one variable is associated with change in other variables, controlling for all constant differences between individuals (Angrist & Pischke, 2008), a strategy that is used in Paper III. Such models are promising ways to isolate the variation of interest and compare like with like. Nevertheless, they are affected by the paradox that when we remove all non-equal generating characteristics, the result becomes difficult to generalise.

A common critique of research conducted within the counterfactual paradigm is namely its emphasis on the internal validity of causal inference, with less focus on external validity. Mitchell argues against *ceteris paribus* as the solution to causal inference, because the ‘all else is equal’ situation is probably only to be found in an imaginary parallel universe and is non-existent in the real social world (Mitchell, 2009 p. 141). Mitchell’s view is that instead of tracking universally true laws, with all the concomitant loss of relevance, we should allow for a continuum of generalisations to count as laws (van Bouwel & Weber, 2011 p. 635). To know the range of an explanation, we should include more information about contingencies in the local system in which the relationship is studied, and its relationship with contingencies in other systems.

According to Cartwright (2009), the understanding of an effect found in a (quasi-)experiment must be informed by both a well-confirmed theory as well as information about how the effect is measured and it how relates to the population and its context. Cartwright’s conception of causation is as enduring *capacities*. Causation understood as capacity is what the ‘causes do across a broad range of settings’ (Cartwright, 2009 p. 7). Capacities are the stable products of causal systems, but this does not mean that we can induce the effect of a cause from a single experiment. In some contexts, the capacity is ‘free to work’, in others, different variables

interfere with the relationship, preventing the causal outcome, or even change negative into positive outcomes. Thus, the capacity theory may resolve the problem of causal inference when a relationship between events is found to be ‘causal’ in one context and not in another.

How the relationship between caregiving for older parents and their children’s labour market participation differs across contexts may serve as an example of how causation works as capacities. Prior research conducted in the US and European countries, much of it in economics using methods from the counterfactual paradigm, has suggested that caregiving for parents affects labour market participation negatively. Comparative research has not revealed the same clear tendency in the Nordic countries and has suggested an association between caregiving and labour market participation is *less causal* in these countries than in other contexts. This is explained by the specific welfare policy, labour market and family culture in these countries (Jakobsson et al., 2013; Kotsadam, 2011). The findings from studies outside the Nordic countries suggest a mechanism whereby caregiving demands reduce people’s labour market participation. The universality of this mechanism is challenged by the fact that *more* people both provide care and participate in the labour market in the Nordic context compared with countries in southern Europe (Daatland & Herlofson, 2004). An alternative understanding of the relationship is that caregiving demands have the *capacity* to affect labour market participation negatively. The capacity view is useful to understand how changing conditions may reveal a causal relationship for those affected by the change, and why the effect is neutralised or turned around in other contexts.

Goldthorpe (2016) argues for a ‘sociology as population science’ where the focus is on the *outcome*, as it appears as a regularity in the population of interest, and its causes, rather than primarily on the treatment and its local effect on the dependent variable. In cases where the design cannot exclude the possibility of a ‘lurking’ confounding variable, as is the case in descriptive analyses, theoretic arguments based on previous research form a part of the validation process.

Another reason why theory becomes important is that conceptualisations of causality in terms of counterfactual dependence do not sufficiently consider the *actions* of individuals as part of the causal process. Human nature is characterised by individuals making autonomous and informed choices. ‘The voluntary nature of much of human activity makes causal statements about these activities difficult’ given the potential outcome approach (Holland, 1986, cited in Goldthorpe, 2016 p. 110). While analyses using a counterfactual approach focus on *whether* there are differences that cannot be explained by variables other than exposure to the

independent variable, they fall short of explaining *why* the effect is produced or the ‘underlying process’ or ‘mechanisms’ of human behaviour. The actions in which we are interested are not distinguishable from the *reasoning* behind them (Goldthorpe, 2016 p. 111). In addition, we can be interested in the individual reasons or motivations for actions themselves, which is difficult to introduce within a (quasi-) experimental study design.

Both Papers I and II provide regression analyses with descriptive interpretations. The aim of these papers is not to draw causal conclusions that satisfy the assumptions of the counterfactual approach, but rather to describe patterns in how different life domains are related over time. These descriptions have their own value. They raise new questions that can be further investigated with other approaches and illustrate how methodological and theoretical considerations guide the understanding of the effects of causes in the world. In Paper III of this thesis, I combine a fixed-effects design from the counterfactual tradition and a descriptive approach, aiming to provide a wider understanding of the causal inferences from previous research. I elaborate further on this approach in the following section.

Fixed effects with interaction term

The analysis in Paper III is inspired by a study of register data conducted by Fevang et al. (2012), who studied the impact of time (in years) to a parent’s death and the respondents’ earnings and employment measured annually. Fevang et al. (2012) use parental death as an exogenous instrument to estimate the causal effects of caregiving demands on labour supply in the years around this event. Using fixed effects, they control for individual heterogeneity, and the study is a robust example of how causal inference is drawn in the counterfactual tradition. Nevertheless, the authors cannot rule out other explanations of the change in employment and earnings. My strategy is to include an *interaction term* representing self-reported caregivers in the fixed-effects design and study how they deviate from non-caregivers in their labour supply around the same event studied by Fevang et al, (2012). However, this strategy deserves additional focus because using the interaction term violates the *ceteris paribus* assumption associated with the fixed-effects design and is therefore presented below.

The panel data used in article III consist of several observations over time t nested in individuals i . I use a fixed-effects model to control for unobserved characteristics of the respondents that do not change over time, such as gender, birth cohort, highest educational level attained or social background. The standard fixed-effects models treat the relationship between the dependent and independent variables as expressed in equation (1):

$$y_{it} = \beta X_{it} + \alpha_i + u_i + e_{it},$$

where X is a vector for all time-varying covariates, and α_i represents the individual (i)-level characteristics that are fixed over time. The error-terms u_i and e_{it} represent unobserved characteristics, u_i represents unobserved characteristics that are stable over time, while e_{it} represents idiosyncratic error, the variation of a specific individual over time. In the fixed-effects model, a time-demeaning procedure is used to subtract the value of every observation from the person's mean. All variables that are constant over time, both observed and unobserved, are cancelled out in this process ($\alpha_i - \bar{\alpha}_i$) = 0. The time-demeaning process can be expressed as follows:

$$(2): \quad y_{it} - \bar{y}_i = \beta_1(X_{it} - \bar{X}_i) + (\alpha_i - \bar{\alpha}_i) + (u_i - \bar{u}_i) + (e_{it} - \bar{e}_i),$$

which reduces the equation to

$$(3): \quad y_{it} - \bar{y}_i = \beta_1(X_{it} - \bar{X}_i) + (e_{it} - \bar{e}_i).$$

In equation 3, β_1 represents the effect of X , controlled for all observed and unobserved variables that are constant over time.

In Paper III, I include a time-constant dummy variable Z and an *interaction term* between the time-constant Z and the time-varying variable X indicating years to a parent's death:

$$(4): \quad y_{it} = \beta_1 X_{it} + \beta_2 Z_i + \beta_3 X_{it} Z_i + \alpha_i + u_i + e_{it},$$

where β_3 expresses the difference in y_{it} between those with different levels of Z at different time points, X_{it} .

$$(5): \quad y_{it} - \bar{y}_i = \beta_1(X_{it} - \bar{X}_i) + \beta_2(Z_i - \bar{Z}_i) + \beta_3(X_{it} - \bar{X}_i)\bar{Z}_i + (\alpha_i - \bar{\alpha}_i) + (u_i - \bar{u}_i) + (e_{it} - \bar{e}_i).$$

In the time-demeaning process, $Z_{it} = \bar{Z}_i$ for all (i, t), and $Z_i - \bar{Z}_i = 0$ (Giesselmann & Schmidt-Catran, 2020). The equation is reduced with respect to the *main* effect of Z , β_2 , but the *interaction* effect between Z and X remains in the model as shown in equation 6.

$$(6): \quad y_{it} - \bar{y}_i = \beta_1(X_{it} - \bar{X}_i) + \beta_3(X_{it} - \bar{X}_i)\bar{Z}_i + (e_{it} - \bar{e}_i).$$

While the unobserved heterogeneity with regard to individual differences in the main effect of X on Y is controlled for, the unobserved heterogeneity associated with Z , in the association between changes in X , and Y , can still be confounded. Because the individual fixed effects only control for heterogeneity *between* individuals, and not endogenous change *within* the individual time paths, we can assume that β_1 is unbiased but β_3 is not (Andreß et al., 2013; Giesselmann

& Schmidt-Catran, 2020). This reflects that allocation into the caregiver group is not exogenous with respect to labour market participation. Labour market participation ahead of the decision to provide care can therefore be a source of endogeneity in differences between the trends of the two groups. Nevertheless, the aim of the study in Paper III is not primarily to detect a causal effect within a counterfactual paradigm. The study contributes to the literature by complementing the conclusions drawn by Fevang et al. (2012) with descriptive evidence regarding how the two groups differ. I argue that this design contributes additional information and validation of previous research findings, based on the arguments presented in the previous section.

6. Summary of the individual papers

Paper I:

Associations between paid and unpaid work among Norwegian seniors: competition, complementarity or continuity?

Published in the *European Journal of Ageing* (First online 02.03.2021)

Co-authors: Tale Hellevik and Katharina Herlofson

Active ageing policies aim to stimulate both participation in paid and unpaid work. In this study, we examined associations between paid work, informal help provision and formal volunteering among those aged 62 to 75 years in Norway. We wanted to investigate whether the paid and unpaid work competed for seniors' time and energy or whether it was possible to achieve both, because the activities may complement one another. Moreover, the concept of continuity was considered as previous activity patterns may be important for subsequent activity.

In this study, data from two waves of the NorLAG Study (2007 and 2017) were employed. We included paid and unpaid work status measured in the first wave in the analyses to assess the importance of previous activity. Our analyses showed that both work exit and part-time work were associated with a higher probability of doing unpaid work in senior years compared with full-time work, supporting the hypothesis of a competing relationship.

However, the results indicated that the concept of continuity is the most important predictor of unpaid work engagement. Previous engagement in unpaid activities mattered considerably, regardless of paid employment status; individuals involved in informal help or formal voluntary work in 2007 were far more likely to do unpaid work 10 years later than those who were not involved. The positive association between stopping working and informal help and care, compared with full-time employment, applied to those not previously providing such help and care. Those who had previously combined work with informal help and care were just as likely to continue doing so, regardless of their paid work status.

Previous participation in unpaid work was also important for volunteering. This was especially so among part-time workers, and the results indicated that part-time work was easier to combine with voluntary work than full-time work. Because seniors who were already engaged in unpaid activities before leaving the labour market were likely to continue to provide informal help and volunteer, we argued that initiatives to stimulate combinations of paid and unpaid work in late careers, before seniors enter retirement, may be advantageous.

Paper II:

Why care? How filial responsibility norms and relationship quality matter for subsequent provision of care to ageing parents

Under review in *Ageing and Society* 2021

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In Norway, eldercare is by law a public responsibility. Despite this, a large proportion of adult daughters and sons help older parents needing care. The aim of this paper was to explore motivations for caregiving in a context free from legal obligations. The research literature has emphasised different perspectives to explain why adult children take care of their parents. In this study, we focused on two of these perspectives: filial responsibility norms and the quality of the parent–child relationship.

Norms of filial responsibility have long been of interest to researchers studying intergenerational solidarity. One reason is that declining levels of support for such norms have caused concern about availability and willingness of family caregivers in the future. The other perspective emphasises that adult children are not motivated by a general understanding of children’s obligations towards their parents, but rather that their motivations are based on the experience of the quality of the relationship with their parents.

Based on longitudinal data from two waves of the NorLAG study (2007 and 2017), we investigated whether previous attitudes towards filial responsibility and perceived quality of the relationship (in 2007) were associated with subsequent caregiving for ageing parents (in 2017). The analyses showed no evidence of a correlation between adherence to filial responsibility norms and provision of help and care 10 years later. Previous perceived quality of the relationship, on the other hand, was associated with provision of help and care from daughters. We concluded that within the context of a comprehensive welfare state, caregiving is apparently more of an individual choice than a societal prescription.

Paper III:

The impact of informal caregiving on labour supply before and after a parent's death

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Adult children are important care providers in their parents' final years. Previous literature has shown that caregiving responsibilities have negative consequences for caregivers' labour market participation, but the results differ with regard to the context in which care is provided. There are indications that the effects of caregiving on labour market participation are less extensive in welfare intensive contexts, like Norway. However, there are also indications of gender differences, and caregiving is also associated with the women's labour supply in Norway. This study investigated how providing care to a parent in the final years affects sons' and daughters' employment and earnings.

The question was investigated by analysing longitudinal data from the NorLAG study. The sample consisted of adult children who participated in Wave 2 (2007) and who had lost a lone parent in one of the subsequent five years. The empirical strategy was first to use register information about their parents' demise as an indicator of amplified care needs in the period prior to their death and explore patterns of labour market participation (employment and earnings) before and after the death of their parent. Then the register data were combined with survey data to separate caregivers from non-caregivers prior to the loss of a parent.

The analyses showed a negative employment trend in the years before and after the loss of a lone parent, but the trend was not associated with being a caregiver. However, the results showed a different development in earnings between caregivers and non-caregivers. Caregivers had weaker development in earnings both before and after the death of their parent compared with non-caregivers. The study concluded that caring for older parents does not make people leave work. Nevertheless, caregiving had a negative impact on the children's earnings in both the period with substantial caregiving needs and the period following the parents' demise. This was especially true for daughters, which implies that there are gender differences in the economic long-term consequences of caregiving.

7. Findings and implications

The overall research question raised in this thesis was *How is participation in unpaid work motivated and related to paid work in the second half of life?* More specifically, I asked:

1. Is there a competing or complementary association between paid and unpaid work in the second half of life?
2. How is engagement in unpaid work (volunteering and informal help and care) associated with previous engagement in and motivations for unpaid work?

To answer these questions, the main analytical approach has been to study how earlier engagement and motivation, in addition to different pathways of paid and unpaid work, are associated with *subsequent* outcomes in paid and unpaid work.

I chose to study the association between paid and unpaid work in two periods of life that involve important life transitions: the loss of paid work through retirement (Paper I) and the transition into a caregiver role for parents (Paper III). The first transition involves a change in the paid work role, and I was interested in how this transition was related to change or continued engagement in unpaid work. The loss of a lone (and last) parent (as studied in paper III) involves a transition from being a daughter or son to being in most cases the oldest survivor in the lineage. More importantly, the loss of a parent is potentially preceded by the transition to or intensification of a care role which is less easy to demarcate than the retirement transition. Theory and previous research have underlined that the care role and its associated expectations and motivations develop over time and within personal relationships. Paper II explored such explanations in the Norwegian context. Taken together, the three papers contribute findings that both confirm and add nuance to previous research about the association between paid and unpaid work in the second half of life in Norway.

I have studied the research questions in the Norwegian context, which is characterised by high levels of participation in both paid and unpaid work. This context is also characterised by a de-familialised social and welfare policy, and it is assumed that this provides people with independence from obligations as well as more autonomy and agency in their life choices. The assumption is that both the capacity and the motivation for different kinds of work can be moderated by context and that results from previous research in other contexts cannot be directly transferred to the Norwegian context. This thesis contributes to the understanding of unpaid work and its association with paid work in Norway.

Previous research has highlighted study designs within the counterfactual tradition as superior for drawing causal inferences. By employing an alternative concept of causation that focuses on the importance of context and theory, this thesis has also sought to contribute to a wider understanding of processes evolving over time and within family relationships.

Discussion

Paid and unpaid work in the second half of life

A central question in this thesis was whether paid and unpaid work in the second half of life competed with or complemented each other. The findings showed that unpaid work was associated with earning less, working part time and to some degree, leaving paid work.

The first paper of the thesis showed a positive association between work exit and participation in unpaid work (both informal helping and volunteering), compared with working full time, which indicated a competing relationship between paid and unpaid work. The third paper, however, found no association between informal care for parents in the terminal phase of a parent's life and exit from employment. In addition, when employment status was controlled for cross-sectionally in the analyses of Paper II, no association with work status and the probability of providing weekly care for a parent was found.

The results, which at first sight appear divergent, regarding the association between unpaid work and employment may be explained by the association being measured around two different transitions. The two transitions are associated with different demands and opportunities, and the focal points of the papers were also different, both with regard to sample and the type of paid and unpaid work that were measured. The sample studied in Papers II and III was younger (with average ages of 56 and 53 years respectively), than in Paper I (those aged 62–75 years, when the outcome variable was measured). This was both because people are on average younger than retirement age when they care for/lose their parents, and because people above the age of 66 years were excluded from the analyses in Paper III. The association between work exit and unpaid work was found in the oldest sample. This could indicate that the threshold to leave work because of caregiving responsibilities was higher for people of working age than when the association between paid and unpaid work was studied in a phase when retirement was possible because of age. Because the diverging results are found between separate studies, I cannot conclude with certainty that the contrasting findings derive from the difference between the studies. However, it is relevant to discuss whether the study designs reflect different conditions for paid and unpaid work in the two situations.

The results of Paper III showed that even in the terminal phase of a parent's life, the character of the informal care provided is for most people not so demanding that they are unable to remain in work because of caregiving responsibilities. This is contrary to some previous research that has suggested an employment effect of care to parents, such as Fevang et al. (2012), who attributed the downward trend in employment around a parent's death to caregiving. The results of my third paper did not support their conclusion.

My study (Paper III) took advantage of the linked structure of the NorLAG data, combining survey and register data, and could therefore provide more information about actual caregiving than Fevang et al. (2012) had access to in their register data. The results showed no difference between caregivers and non-caregivers in their employment probability and were also in line with previous research that found little effect of informal caregiving on employment probability in Norway (Kotsadam, 2012). When studying the association between paid and unpaid work among 62–75-year-olds (Paper I), on the other hand, we found a positive association between stopping work and unpaid work provision, compared with working full time.

One could argue that the different results can be explained by the opportunity cost of unpaid work being lower among the oldest workers that had the possibility of retirement. It is also possible to consider mechanisms other than retirement *because of* competing commitments to volunteering or caregiving. The competing relationship between paid and unpaid work in Paper I could reflect other motives, such as people taking up new activities after ending a work role. If so, the decision to leave work comes first. This accords with the continuity perspective focusing on how people seek to remain active across different domains, and that the loss of a role is replaced by another.

Consistent with the continuity theory, the results also showed that previous engagement in unpaid work was the most important predictor of unpaid work. When an interaction term was included between previous engagement in informal care and employment status in Paper I, the results yielded some nuances to be discussed.

The positive association between stopping working and *informal help and care*, compared with full-time employment, was only apparent for those not previously providing such help and care. Those who had previously combined work with informal help and care were just as likely to continue doing so, regardless of their paid work status. There are different possible interpretations of this result. It could indicate that the informal help and care provided were not too intensive and could be combined with continued work. It could also be that the caregiver

role cannot be easily discarded because of conflicting demands and can result in an ambivalent situation that is not captured in the quantitative data presented here.

The probability of both starting and continuing *voluntary work* were lower for full-time workers compared with those who had stopped working or worked part time. A reduction of volunteer work can be a way of maintaining work capacity in the last years of working life, in line with the role-strain hypothesis (Goode, 1960). The results showed, however, that employment and volunteer work were not in direct opposition: The part-time workers were the most likely to continue volunteer work, indicating a complementing association between paid and unpaid work when part-time work is an option. From a theoretic perspective, such an association can be explained by both the human and social capital associated with paid work (Wilson & Musick, 1997a) and theories of role enhancement (Sieber, 1974). The human capital that increases the probability of being employed, may also increase the probability of providing unpaid work. Paid work can also provide people with a social network and resources that stimulates unpaid work outside the family realm.

Although my results did not provide clear evidence of a negative association between unpaid work and employment probability, I found indications of a ‘caregiver cost’ on earnings. Caregiving in the terminal phase of a parent’s life was negatively related to earnings (Paper III). Furthermore, as already mentioned, the results showed that part-time workers, unlike full-time workers, were more likely to both volunteer and to provide informal help and care (Paper I). The results confirm previous research that has concluded with an association between part-time paid work and unpaid work (Daatland et al., 2010; Herlofson, 2015), but cannot conclude with a reduction in paid work hours *because* of unpaid work since part-time work was not studied over time. The decrease in earnings shown in Paper III could be interpreted not only as less time spent on work but also a potential wage penalty of being a caregiver based on less attendance at work or different kinds of absenteeism, as shown by previous research (Gautun & Hagen, 2010; Ugreninov, 2013). This was most evident in the case of daughters and was consistent with previous literature that found more negative effects of caregiving for daughters (Ugreninov, 2013) and those providing intensive care (Kotsadam, 2012). The study in Paper III contributes the finding that the negative association with earnings for those who lost a parent was related to caregiving, as suggested in the register study by Fevang et al. (2012).

It is argued that the Norwegian universal care system, supplemented with no legal obligations for the adult population, relieves family members of interdependence and facilitates participation in the labour market. The findings of moderate associations between informal care

and paid work support previous findings of more significant effects of informal caregiving on working time and attendance than on work exit in the Nordic context (Gautun & Hagen, 2010; Kotsadam, 2012). A possible overall interpretation of the results in this thesis is therefore that most people do not leave the labour market because of caregiving responsibilities, but part-time work seems easier to combine with unpaid work than full-time work, and retirement may be an opportunity to start or continue informal help or volunteering. However, the negative effect of caregiving on earnings for people in employment indicates a need for reconciliation between care and work responsibilities in the Norwegian context.

Unpaid work from a life-course perspective

The second question asked in the introduction of this thesis was: How is engagement in unpaid work (volunteering and informal help and care) associated with previous engagement in and motivations for unpaid work?

A main finding is that that unpaid work in the second half of life can be explained by previous engagement and relational experiences over the life course. When people provide informal help or volunteer after retirement it is often a continuation of activities provided earlier in life.

The first two papers examine the association between activities and characteristics measured earlier in life with subsequent engagement in unpaid work. The papers show that participation in unpaid work is based on earlier participation in the same kind of activity (Paper I), and on the quality of the relationship within which informal care is provided—more specifically the relationship of adult children with their parents, and not filial responsibility norms (Paper II). This accords with theories emphasising that life courses are shaped by earlier events and transitions (Elder et al., 2003) and the relationships in which people are embedded (Finch, 1989). Both findings indicate that explanations of involvement in different forms of unpaid work are likely to be found in individual life history, the first indicating continuity and the second indicating autonomy rather than general norms or legal prescriptions.

All three papers illustrate the value of studying care and work trajectories over time, which is the main contribution of this thesis to previous literature. In this way, we can determine that behind the competitive association between paid and unpaid work, the process of continuity and linked lives tends to be just as important. To my knowledge, the association between volunteering and paid work and its relationship with previous participation has not been studied longitudinally in the Norwegian context until now. Therefore, this thesis contributes new knowledge on the importance of previous engagement for voluntary work.

The thesis also contributes to the discussion about the role played by social policy in shaping intergenerational dependence and motivations for informal help and care. Previous research shows that in the de-familialised Nordic countries, families and other informal caregivers provide a significant share of care to people who need it, and engagement in unpaid work is not substituted by a comprehensive welfare state. I argue that the description of de-familialisation does not explain why the family is not as absent from the care system as their legal obligation is. The number of people providing informal help and care, as well as the proportion of people who volunteer, are high in Norway compared with other countries (Hansen et al., 2018; Verbakel, 2018). This implies other possible explanations for participation in unpaid work in senior years than the division of labour within the welfare system, where little responsibility is placed on the family and civil society.

Alternative explanations for informal caregivers' and volunteers' engagement suggest that despite the welfare state's services being universal in principle, they are not found to be *sufficient* to cover existing needs (Gautun & Bratt, 2017). This thesis does not explore whether the availability of services has an effect on caregiving patterns. However, given that rates of both caregiving and volunteering are higher in Norway than in countries with *less* formal care, this thesis has sought other explanations of caregiving and volunteering within the Norwegian context. The theory of complementarity between formal and informal care suggests that care and volunteer work are more appealing and bearable to informal providers when the bulk of the burden is relieved by formal providers (Chappell & Blandford, 1991). This explanation has received much support in previous literature but does not reveal the individual drivers such as motivation and capacity for caregiving and volunteering.

To focus on caregiving, people can engage in it with a feeling of doing 'the right thing' that may have evolved over the years (Finch, 1989) or they can experience ambivalence while being forced to balance conflicting demands from work and family. The findings from Paper II shows that relationship quality is associated with caregiving and that filial responsibility norms are not. This indicates that those with satisfactory relationships with their parents provide care, while others with more conflicting (or ambivalent) relationships are relieved of responsibility, which could be another indication of autonomy in care relationships in the Norwegian context. This thesis does not explore experiences of caregiver strain or conflicting relationships between care-givers and -receivers, but as Connidis and McMullin (2002) argue, ambivalence can be relieved by social policy facilitating the reconciliation of care and paid work and thereby promoting caregiving provided for personal motives rather than norms and structure. However,

the negative effect of caregiving to parents on earnings in the younger sample, when retirement is an option for only the few (paper III), could indicate a lack of social policy relieving individuals from their informal care responsibilities in this phase of life. Therefore, a question for future research could be whether there are specific events or transitions in the life course that are more associated with conflict or ambivalence than others.

Gender and autonomy in unpaid work

Throughout the papers of this thesis, it is argued that unpaid work in Norway is of a more voluntary character. Autonomy in decisions over the life course, supported by a welfare state that aims to de-commodify and de-familialise dependency, allows people to combine and engage in different activities without the *necessity* to leave one activity for another. These explanations do not rule out the possibility that there are people who experience a scarcity of services in Norway, making informal caregiving necessary, or that autonomy may vary over the life course with regards to how interdependency within families is moderated by the social policy associated with different life transitions as illustrated above.

Although the Norwegian context may allow people to follow internal motivations more than external needs, people's life situations, opportunities and constraints differ and consequently, the degree of agency varies from person to person. For instance, Paper III assumes a wage *penalty* from caregiving to parents, but from the analyses we cannot reject the possibility that this is a result of a choice to prioritise being with parents in their last phase of life, made possible by the social insurance system, unpaid leave or the possibility of working less. However, the results show that the reduction in earnings related to caregiving before the parent's death is mainly experienced by daughters, contributing to gender differences in social opportunities, whether self-chosen or not. I therefore continue to discuss the implications of the findings with regard to gender.

Gender was not associated with the probability of providing informal care or volunteering, in the phase of retirement studied in Paper I. However, Paper III, which focused on a period earlier in life associated with extensive care needs, showed gender difference in the association between earnings and care, with women experiencing negative effects for a longer period of time compared to men. This can be explained by findings from previous research. Although it has been shown that men are increasingly accepting responsibility for caregiving, and that males also take part in supporting older family members, they do not necessarily step in when the needs are greater (Herlofson, 2013; Herlofson & Ugreninov, 2014). Thus, sons do not

necessarily experience the same consequences of caregiving in their working lives that daughters do.

From a microeconomic perspective, one could argue that the opportunity costs of caregiving are lower for women, so women are more likely to reduce their labour market participation if care needs arise or engage in caregiving because they already work part time and have the time and opportunity to provide care. Paper II proposes an alternative explanation, focusing more on the interpersonal reasons for women's engagement in caregiving. Previous relationship quality was found to be important for women, and not (significantly) for men. As argued above, the commitments negotiated within the family over time are important for who becomes the caregiver when needs arises, and relationship quality may have a role in reinforcing the personal commitment for caregiving for daughters.

Limitations

The thesis raises questions about the impact of context on the association between paid and unpaid work, but the findings are restricted to a Norwegian context. All three papers would have benefited from the inclusion of *comparative data* from different countries in the analyses. To interpret the results as responses to welfare regimes and cultural contexts, one can only compare the findings with studies from other countries. An alternative to a cross-country comparative perspective in answering some of the questions regarding the impact of context is comparative data including variations in public services, either longitudinally over time or between municipalities in Norway. Therefore, future research on the importance of context would benefit from including variations in the type and level of *formal services* available. However, the advantages of the NorLAG study are its link to register data and a large number of respondents who were re-interviewed over a long time span, which provides us with rich data to explore the comparative perspective at the individual level and longitudinal relationships over time with the events of important linked lives.

Active ageing theories have been criticised for being overly preoccupied with *productive* activities (Boudiny, 2013; Xu et al., 2020), a criticism that could be extended to my work as well. This thesis focuses on activities that theoretically can be considered productive activities that are valuable both to individuals and to society. Internally oriented activities that are more meaningful to the individual than to society are not studied. The thesis may therefore contribute to reinforcing the view that active ageing is productive ageing, by not focusing on for instance

how quality of life is affected by engagement in paid and unpaid work, and the association between them, in the second half of life.

An aim of this thesis is to contribute to the discussion about the potential for more contributions from seniors in paid and unpaid work in *future* societies. As Deaton and Cartwright (2018) argue, predictions based on uninformed assumptions about the social and economic structures behind experiments can easily fail, regardless of the internal validity of the experiment. This illustrates how prediction is difficult, irrespective of the robustness of the study design. My results cannot be used to predict the actions of future seniors but shed light on how research and theory conducted in other fields and contexts is consistent with contemporary Norway. Hopefully, in light of theory and previous research, the results can also be used to understand how change in the social and economic structure characterising this context can prepare the ground for a range of outcomes in an unknown future, or in other words, the capacity for a competing or complementing association between paid and unpaid work.

Finally, the empirical studies were limited by the survey questions and sample size of the NorLAG study, which restricted the possibilities for more detailed analyses of the various types of paid and unpaid work activities in which the respondents were engaged and the motivations behind their involvement. Despite the lack of gender differences in the probability of providing unpaid work in the oldest sample (paper I), I cannot either reject that there are different mechanisms going on when men and women are engaging in various activities in later life. To expand the understanding of involvement in paid and unpaid work in the second half of life, future research may benefit from qualitative studies, as they may provide more in-depth insights into motivations and priorities for as well as obstacles to engagement.

Policy implications—concluding remarks

The aim of this thesis was to study and understand participation in paid and unpaid work in Norway. I conclude by discussing the implications of the results for social policy, and how policies aimed at solutions to macro problems may have unintended consequences at the individual level.

Active ageing policies have been placed on the political agenda and receive support both because of their potential benefits for individual health and quality of life and because they are presented as promising solutions to the future challenges of population ageing. Active ageing policies are intended to both extend working lives and promote social participation and activity

beyond working life. However, the main part of politics to secure future welfare sustainability focuses on seniors' participation in paid work.

The importance of unpaid work in welfare production has been somewhat overshadowed by the emphasis on paid work. As one of the 'welfare pillars' (Esping-Andersen et al. 2002), the family pillar has a necessary role in balancing welfare production in Norwegian society. However, this pillar needs recognition to remain stable. If unpaid work in senior years is not recognised as active ageing or a societal contribution, the intensification of other active ageing policies, such as incentives to extend working lives, could erode the family pillar. Increased demands for labour can weaken the strength of the informal safety net made up of Norwegian families and social networks.

In recent years, a weakening of the traditionally important role of the government pillar in the production of welfare has been observed in several Nordic countries, challenging the principle of universalism. The quality of services, and thereby their attractiveness to the middle class, has declined together with a rise in marketisation policies promoting competition involving private for-profit providers (Szebehely & Meagher, 2018). Although the legislation of the right to care has not changed, the eligibility criteria for access to eldercare services have become stricter (Szebehely & Meagher, 2018, p. 297). Consequently, family care has become less optional in these countries (Gautun & Bratt, 2017; Jolanki et al., 2013; Ulmanen & Szebehely, 2015; Van Den Broek et al., 2019), at least for some. The observed patterns of re-familialisation and privatisation of care follow socio-economic class boundaries. While the lower-educated take over responsibility for declining services, people with higher education pay for private services of higher quality in the market (Ulmanen & Szebehely, 2015). The same trend, towards marketisation and re-familialisation, has not been seen in Norway, but downscaling of home care and long-term care institutions is taking place here as well, together with a shortage of qualified health personnel that is predicted to increase in the future (Gautun, In press). This development deteriorates the quality of services and may increase demand for other sources of caregiving, as seen in the neighbouring countries.

In addition, the individualisation of eldercare, camouflaged as independence and 'active care' can put more pressure on family caregivers. The aim of 'active care' in long-term care is related to goals closely linked to the concept of 'active ageing', but the focus on remaining independent of services has some pitfalls. There are reasons to be concerned about autonomy and independence framed as active ageing if they are used to justify cutting costs. The focus on independence and autonomy may underestimate needs and result in the burden of the informal

network of caregivers within the family and social network becoming heavier, making the potential for increased labour supply from individuals experiencing care demands less likely. Active ageing policies can be used instrumentally—not only to secure economic sustainability, but also as an aim promoting quality of life for individuals. To obtain sustainable welfare, policymakers should consider what contributes to economic balance and the well-being of citizens simultaneously. These are not opposites.

As the active ageing policies are placed high on the agenda as the solution to challenges of population ageing, an important question for policymakers should be: What are the contributions from seniors in unpaid work, and what are the consequences of an extension of working lives for such participation? Conversely, if less formal care provision results in increased demands on informal caregivers, what is then the impact of caregiving on the labour market participation on adult offspring? Although there are no clear signs of a *formal* shift in the Norwegian government's position towards more official family responsibility, the question is whether the long-term care services will cope with the increasing needs following the developments of population ageing. Whether the Norwegian family will continue its role as the safety net of the welfare of individuals, complementing public services, remains a question for future research.

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Associations between paid and unpaid work among Norwegian seniors: competition, complementarity or continuity?

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Abstract

A key issue in policy debates on active ageing is how to increase older people's participation in both paid and unpaid work. This combined goal raises the question of whether the different activities compete for seniors' time and energy or whether it is possible to achieve both, since such activities may instead complement one another. To address this issue, we examine associations between paid work, informal help provision and formal volunteering among 62- to 75-year-olds by using longitudinal data from the Norwegian Life Course, Ageing and Generation Study (2007, 2017). Our analyses show that both work exit and part-time work are associated with a higher probability of doing unpaid work in senior years compared with full-time work. However, previous engagement in unpaid activities matters considerably, regardless of paid work status. Individuals involved in informal help or formal voluntary work in 2007 were far more likely to do unpaid work 10 years later than those who were not involved. Since seniors who are already engaged in unpaid activities before leaving the labour market are likely to continue to provide informal help and volunteer, we argue that initiatives to stimulate combinations of paid and unpaid work in late careers may be advantageous.

Keywords Active ageing · Informal help and care · Formal volunteering · Older workers

Introduction

Over the past decade, several initiatives have been launched to stimulate the participation of older people in society. Examples include the European Year of Active Ageing and Solidarity between Generations in 2012 (European Commission 2010), 'Live Longer, Work Longer' (OECD 2006) and 'Towards an Age-friendly World' (WHO 2015). In Norway, the most important effort is the government's recent reform entitled 'A full life—all your life' (Norwegian Ministry of Health and Care Services 2019), which aims to create a more age-friendly society in which older people participate in the community and live meaningful lives. The initiatives build on the idea of 'active ageing', a concept that can be traced back to earlier contributions in social gerontology, such as 'activity theory' (Havighurst 1961) and 'continuity theory'

(Atchley 1989), as well as theories of 'productive ageing' (Butler and Gleason 1985) and 'successful ageing' (Rowe and Kahn 1987). All these approaches to ageing stress the importance of continued activity and involvement for older people's well-being and health.

Towards the end of the 1990s, due to demographic changes, with increasing population ageing, the idea of 'active ageing' made its move from science to policy, and particularly in the European debate, to a stronger emphasis on the contribution of active older people to the sustainability of the welfare state (Walker 2016). Although policy discussions have tended to concentrate on paid employment, active ageing is far from solely about extending working life (Foster and Walker 2015). In fact, the joint European initiative, the Active Ageing Index, clearly recognises the central role of unpaid activities like formal volunteering and informal help and care provision (European Centre Vienna 2013). An essential question then becomes whether the different activities compete, i.e. if participation in one activity takes place at the expense of involvement in another, or whether they complement one another. Since time is a finite resource, one might assume the former (competition or trade-off) to be the case. On the other hand, individuals

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who are engaged in one type of activity may be more likely to participate in others, implying that there exists a ‘more-is-more’ (or complementarity) phenomenon. So far, findings are inconclusive as to which mechanism is more prominent. To better understand how the various activities are related, we will employ longitudinal data from the Norwegian Life Course, Ageing and Generation Study (Veenstra et al. 2021). These data also enable us to address the importance of continuity by examining whether current participation in unpaid work depends on earlier involvement in the same activity or whether engagement in paid work is likely to be replaced by engagement in unpaid activities later in life.

Background

Theoretical context

The literature offers various theories on how productive activities (paid and unpaid) may be linked in later life, some pointing towards a competing/trade-off relationship (engagement in one activity *decreases* the likelihood of being engaged in others), others implying a complementary/more-is-more relationship (engagement in one activity *increases* the likelihood of being engaged in others). A negative relationship would be the outcome of ‘role overload’ or ‘role strain’ (Goode 1960). If different activities compete for individuals’ time, energy and/or commitment, starting a new activity is likely to result in a need to reduce participation elsewhere, whereas quitting an activity leaves more room for other types of engagement. A second proposed mechanism leading to a negative association is ‘role substitution’, a tendency for individuals to feel role loss when they leave an activity (commonly paid work for older individuals) and then to compensate for this loss by taking up other activities (Chambré 1984; Herzog et al. 1989). A positive association, on the other hand, is a probable outcome if involvement in one activity increases the opportunity or motivation to participate on other arenas, referred to as ‘role extension’ (or the more-is-more principle) (Hank and Stuck 2008; van der Horst et al. 2016). Another argument used in support of a complementary relationship is that engagement in a productive activity is vitalising and creates energy. Consequently, instead of multiple activities being in conflict, it is more the case that activity breeds activity (Marks 1977). This line of argument also implies that exit from paid work is accompanied by decreased engagement in other activities (Mutchler et al. 2003).

Being active in older age may depend on earlier activity patterns. Of relevance here is the concept of continuity, which can have different aspects: continuity within the same activity, meaning that people engaged in an activity are likely to continue being engaged (Mutchler et al. 2003),

and continuity in the sense of leading an active life in general. The latter implies that if an activity is interrupted by, for example, retirement, the lost activity may be substituted by another (e.g. volunteering). This aspect is in line with the role substitution mechanism, as well as with Atchleys’ (1989) continuity theory stating that people adapt to changes associated with ageing by taking part in activities that confirm a sense of continuous self-identity across different social domains.

Earlier research

The association between paid and unpaid work has been analysed in several previous studies. In research on informal help, an increasing number of publications focuses on how help and care given to older family members are related to paid employment (Bauer and Souza-Poza 2015; Choi et al. 2007; Daatland et al. 2010; Gautun and Bratt 2016; Lee and Tang 2015; Moussa 2019). In sum, the conclusion is that the correlation is negative, as caregivers are likely to work fewer hours or not be employed compared with non-caregivers. Whether or not caregivers leave the labour market altogether seems to depend on the intensity of the help and care provided, and on the relationship to the receiver. For example, Jacobs et al. (2014) find that the number of hours of personal care provision is a predictor of leaving work, whereas Carr et al. (2016) conclude that work exit is only likely to occur if the care provider and the care receiver live together. Similarly, grandparents seem to have difficulties in combining full-time paid work with regular grandchild care (Hank and Buber 2009; Lakomý and Kreidl 2015), and there is also evidence of older workers leaving paid employment when entering grandparenthood (Van Bavel and Le Winter 2013; Zanasi et al. 2020).

Volunteering among seniors has been shown to be both negatively and positively related to paid employment. Hank and Stuck (2008), Di Gessa and Grundy (2017) and Mutchler et al. (2003) all conclude that the tendency to volunteer increases after retirement, hence implying a negative relation. Others find volunteering to be positively associated with paid work in later life (Strauss 2019; van der Horst et al. 2017), but this mainly seems to hold in the case of part-time work (Carr and Kail, 2013; Mutchler et al. 2003). Carr and Kail (2013) argue that volunteering is compatible with continuing paid work on a part-time basis after leaving full-time work, both because paid activity can provide social resources facilitating engagement in other (unpaid) activities, and because those who continue in paid employment may prefer being active in general, making them more likely to volunteer as well.

How different types of *unpaid* activities are related to one another is more ambiguous. Several studies report positive links between volunteering and informal help and care (Burr

et al. 2005; Di Gessa and Grundy 2017; Hank and Stuck 2008; Strauss 2019), whereas others conclude that engagement in various unpaid activities compete with (Choi et al. 2007) or are independent of each other (van der Horst et al. 2017). One possible reason why the literature deviates is that associations between different activities are commonly studied cross-sectionally, without considering the dynamic nature of the relationship (e.g. leaving one activity for another). The few studies taking a longitudinal perspective reveal that previous involvement in volunteering or informal help and care is the most important predictor of engagement in the same unpaid activity (Di Gessa and Grundy 2017; Erlinghagen 2010; Mutchler et al. 2003).

To sum up, the ‘trade-off hypothesis’ seems to receive more support than the ‘more-is more’ phenomenon, as seniors’ participation in paid work is mostly found to be negatively linked to involvement in unpaid activities. Furthermore, earlier studies confirm the importance of continuity; previous engagement in unpaid work appears to be key to participation in later life.

The Norwegian context

The Norwegian (or Scandinavian) case is of interest from a comparative perspective because its universal and extensive welfare state is not resulting in passive citizens, but rather in high participation in both paid and unpaid work (Henriksen, et al. 2019; Jegermalm and Grassman 2009; Verbakel 2018), also in later life (Hansen et al. 2018; UNECE/European Commission 2019). Common types of unpaid activities, both voluntary work and informal help, tend to differ somewhat from the situation elsewhere in Europe. The cultural legacy of civil involvement and self-organising in Scandinavia has led to a high density of voluntary organisations within the fields of culture and leisure, whereas in continental Europe, organised volunteering in the welfare sector is more typical (Henriksen et al. 2019). In fact, according to a Norwegian study, the largest share of volunteers provides unpaid work for associations within the fields of culture and recreation (68%). Organisations related to religion, health and social services, on the other hand, attract more modest shares (9–14%) (Eimhjellen et al. 2018). The pattern is similar for older age groups (Hansen and Slagsvold 2020). The majority of volunteers in their sixties contributes sporadically or 1–2 h a week at the most, and only approximately 20% are engaged for 3 h or more every week (ibid.). This is an interesting observation, considering the recent Norwegian reform ‘A full life—all your life’, where one aim is to increase voluntary work in the health and care services by systematic recruitment of seniors. Traditionally, this sector has been left almost entirely to professional workers. Bringing volunteers in would require a firm commitment from these individuals. However, according to a recent study from Norway, few

seniors are willing to commit themselves for a longer time period (i.e. 6 months) or to adjust holidays and leisure time in order to volunteer (Hansen and Slagsvold 2020).

As for informal help, the extensive availability of public care services relieves family members of intensive care responsibilities, giving them the option to concentrate on less frequent provision of practical help. This does not mean that the family wriggles out of its care responsibilities. In fact, comparative studies confirm that more men and women are involved in providing informal help and care, including grandchild care, in the Scandinavian countries than further south in Europe, but they typically invest less time (Brandt 2013; Herlofson and Hagestad 2012; Verbakel 2018). A similar cross-national pattern is found for volunteering (Hansen et al. 2018). Both characteristics, the organisation of unpaid work and time use, seem to enable Scandinavians to follow their personal interests to a greater extent, and to choose activities more out of motivation and less out of necessity to provide essential care to people with large needs (Amilon and Larsen 2020). Consequently, the competitive relationship between paid and unpaid work might be less salient in Norway than in countries outside Scandinavia.

Data and methods

Sample

To study associations between labour market participation, volunteering and informal help among seniors in Norway, we employ data from the Norwegian Life Course, Ageing and Generation Study (NorLAG). Three survey waves have been carried out so far (2002, 2007, 2017), including computer-assisted telephone interviews (CATI) and self-administered questionnaires that are linked to register data. We use information from Wave 2, which due to a large refresher sample is considered nationally representative ($N=9238$ aged 40–85, response rate 61%), and Wave 3 to which 68% of earlier NorLAG participants responded ($N=6099$, aged 50–95). In both waves, three out of four CATI respondents returned the self-administered questionnaire (Veenstra et al. 2021).

For the purpose of our analyses, we identify a subsample consisting of respondents who participated in both Waves 2 and 3 and were aged 62–75 in 2017 ($n=2420$). The age span covers the years when workers in Norway may start to withdraw retirement pension (before turning 67, provided they have enough earnings), while they also may accumulate pension entitlements if they continue to take paid work. This age group was chosen because one of our aims is to investigate whether participation in paid work is likely to be replaced by engagement in unpaid work, and thus our respondents should have the opportunity to exit the labour

market in the period between the two waves. As some of the relevant survey questions are in the self-administered questionnaire, the sample is restricted to respondents who completed this part of the survey in both waves ($n = 1666$). We exclude respondents with missing values on any variable included in the analyses, leaving us with an analytical sample of 1625 individuals.

In most surveys, particularly longitudinal studies that follow the same people over time, a challenging issue is non-response and selection bias. In NorLAG, two-thirds of the respondents aged 52–65 in the nationally representative sample of Wave 2 participated in Wave 3 (when aged 62–75). Our analytical sample, with its additional requirement that respondents completed the self-administered questionnaire in both waves, includes approximately 45% of all 52- to 65-year-olds from Wave 2. If we compare the whole Wave 2 sample (52–65) with our analytical sample, the latter has on average a higher educational level (8 pp difference), better self-reported health (6 pp difference) and were more often in paid work in Wave 2 (6 pp difference). For the tendency to provide informal help or formal volunteering, the differences are smaller and close to negligible. All in all, the selection bias is relatively modest and should not have any significant impact on the results of our analyses (see, for example, Hellevik 2016).

Dependent and independent variables

To examine associations between paid and unpaid work over time, we have two dependent variables: informal help provision (Model 1) and formal volunteering (Model 2) (both measured in 2017). Our main independent variable measures paid work status (stability and change between 2007 and 2017). Since we also aim to study the importance of continuity, Model 1 includes informal help in 2007 and Model 2 includes volunteering in 2007. Finally, we are interested in how the two forms of unpaid work are connected. Consequently, voluntary work (2017) is included in Model 1 and help provision (2017) in Model 2.

Informal help provision is measured through several questions on help and care, including grandchild care: ‘Approximately how often do you do the following ... Look after grandchildren?’, personal care: ‘Have you within the past year regularly helped someone with personal care, like eating, getting out of bed, getting dressed, or going to the toilet (not including children)?’, and practical help: ‘Have you within the past year regularly given practical help to people who you don’t live with?’. The questions were repeated in both waves. For provision of personal care and practical help, respondents had to specify in follow-up questions how often they had helped. We assign the value 1 to respondents who answered at least weekly for at least one of the three types of care provision. Formal volunteering is measured, for both

waves, through a single question: ‘Approximately how often do you do the following ... Voluntary work for clubs/organisations?’. We assign the value 1 to respondents who specified at least weekly.

Work status is measured through the following questions (2007 and 2017): ‘Did you do paid work for at least 1 h last week?’ and ‘If no, are you in paid work that you were temporarily absent from last week?’. A ‘yes’ answer to either question is considered as being in paid work. We separate part-time and full-time workers in 2017 by a question on whether the respondents considered their work to be part-time or full-time. Based on this information, we construct the following dummy variables: ‘Stopped working between 2007 and 2017’, ‘Not working in either 2007 or 2017’, ‘Working part-time in 2017’ and ‘Working full-time in 2017’. Most part-time and full-time workers in 2017 were also working in 2007. The few respondents ($n = 24$) who entered paid work between the two waves are included in the two latter variables depending on their work hours (part-time or full-time) in 2017.

Previous research has illustrated how the dynamic between paid and unpaid work varies with the different backgrounds and resources that people have (Wilson and Musick 1997). Hence, we control for education, subjective health status (in 2007) and living with a partner (in 2007), in addition to gender and age, which are variables that have been shown to be important for participation in both paid and unpaid work (Jongeneel et al. 2020; Komp et al. 2010). Education is measured by register data, with ‘1’ equalling college/university level. Partner status is based on a combination of register and survey information in 2007. Finally, subjective health is the respondent’s evaluation of his/her own general health (excellent/very good/good/fair/poor) in 2007, which is included as a binary variable, where ‘1’ equals the two highest values.

Methods

We perform multivariate regression analyses using linear probability models (LPMs). An important advantage of LPM models is that their coefficients are easier to interpret than those in logistic regression. Furthermore, the statistical objections to using LPM have been shown to have little practical significance (Hellevik 2009). Additional sensitivity tests using logistic regression yield results similar to the LPMs presented here (available upon request).

Results

Descriptive statistics

Table 1 provides descriptive statistics for our sample of respondents aged 62–75 in 2017. Not surprisingly

considering their age, close to half (49%) were in paid work in 2007 but had left by 2017. The rest are equally distributed across the three remaining categories denoting stability in work status: not being in paid work in either survey wave, working part-time in 2017, and working full-time in 2017. Turning to the two types of unpaid work (performed weekly or more often), in 2007, 33% of the sample provided informal help whereas 16% did volunteer work. For both activities, there is a small increase between the two waves but the changes are not statistically significant.

The statistics for the control variables show that men and women are almost equally represented in the sample (49% are men). The age distribution is marginally skewed towards the youngest age group (62–64). Furthermore, 41% of the respondents have a high educational level. Finally, in 2007, 79% lived with a partner and 49% considered their health to be very good or excellent.

Table 1 reveals no substantial change in either informal help or formal volunteering between the two waves on the aggregate level. However, this apparent stability conceals the fact that people are both starting and quitting the two activities, as illustrated in Fig. 1. In the multivariate analyses, we will investigate how these individual changes in unpaid work interact with changes in paid work.

Table 1 Descriptive statistics (%)

Main variables	
Paid work status	
Stopped working between 2007 and 2017	49
Not working in either 2007 or 2017	17
Working part-time in 2017	16
Working full-time in 2017	18
Informal help provision (at least weekly) in 2007	33
Informal help provision (at least weekly) in 2017	37
Formal volunteering (at least weekly) in 2007	16
Formal volunteering (at least weekly) in 2017	17
Control variables	
Gender (% male)	49
Age in 2017	
62–64	23
65–66	17
67–68	15
69–70	15
71–72	15
73–75	15
Education (% college/university)	41
Living with partner 2007	79
Subjective health status (% very good/excellent) 2007	49
<i>N</i>	1625

Multivariate analyses

Table 2 presents linear regression models for the probability of providing informal help and volunteer work (at least weekly) in 2017 dependent on previous and current paid and unpaid work participation. Model 1 shows that full-time workers at follow-up (2017) have a 9% lower probability of providing informal help than those who stopped working between the two waves (reference group). Part-time workers, on the other hand, do not deviate significantly from the reference group, but additional analyses show that they are more likely to provide help than those in full-time paid work. Individuals who were not in paid work in either of the two waves do not deviate significantly from any of the other groups regarding the likelihood of providing informal help (results from the additional analyses are available upon request).

The second model (Table 2) illustrates how paid work is associated with volunteering. Full-time workers (in 2017) have around 10 percentage points lower probability of doing volunteer work at least weekly compared with those who left paid work between the two waves. Neither part-time workers in 2017 nor those out of paid employment at both time points differ from individuals who left paid work between waves. In the same manner as for informal help, additional analyses indicate that part-time workers are more likely to volunteer than full-time workers. Finally, non-workers (in both 2007 and 2017) do not differ significantly from the other groups.

Engagement in the same unpaid activity 10 years earlier is of utmost importance; informal helpers in 2007 have a 25% higher probability of also helping in 2017 than those who did not provide help, whereas volunteers in 2007 have a 31% higher probability of volunteering at follow-up than those who were not engaged in such work 10 years earlier. The association between the two unpaid activities is represented by a negative coefficient in both models indicating a competing relationship, but the correlation is not statistically significant.

Turning to our control variables, there is no significant difference between men and women (in our sample of 62-

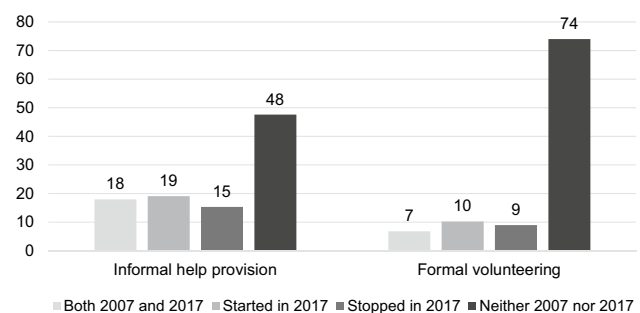


Fig. 1 Change and stability in informal help and formal volunteering between 2007 and 2017 (%)

Table 2 Associations between paid and unpaid work: Informal help (Model 1) and formal volunteering (Model 2)

	Model 1: Informal help (at least weekly) 2017		Model 2: Formal volunteering (at least weekly) 2017	
	Coef	SE	Coef	SE
Paid work status: (ref: Stopped working between 2007 and 2017)				
Not working in either 2007 or 2017	−0.067	0.035	−0.038	0.027
Working part-time in 2017	−0.014	0.034	−0.012	0.026
Working full-time in 2017	−0.094**	0.036	−0.105**	0.027
Informal help provision (at least weekly) in 2007	0.246**	0.025		
Formal volunteering (at least weekly) in 2007			0.313**	0.024
Informal help provision (at least weekly) in 2017			−0.034	0.019
Formal volunteering (at least weekly) in 2017	−0.059	0.031		
Control variables				
Gender (ref. male)	−0.039	0.024	0.035	0.018
Age (ref: 62–64)				
65–66	0.06	0.037	−0.014	0.029
67–68	0.042	0.04	−0.007	0.03
69–70	0.001	0.04	0.016	0.031
71–72	−0.046	0.041	0.021	0.031
73–75	−0.075	0.043	0.023	0.033
Education (ref. < college/university)	0.02	0.024	0.054**	0.019
Lives with partner	0.112**	0.029	0.003	0.022
Subjective health status (ref. < very good)	0.028	0.024	0.060**	0.018
Constant	0.240**	0.041	0.084**	0.032
Number of observations	1625		1625	
R ²	0.092		0.118	

Linear probability model

** $p < 0.01$, * $p < 0.05$

75-year-olds) in the likelihood of regular engagement in unpaid work. Nor does age matter. Higher education and good self-reported health (in 2007) increase the propensity to be engaged in volunteering (but not in informal help). Living with a partner (2007), on the other hand, means a higher probability of providing informal help (but not volunteering) 10 years later. Both health and partner status were measured in 2007, but sensitivity tests including measures of the same variables for 2017 did not notably alter the results. Since *change* in self-reported health is also likely to be related to change in both paid and unpaid work status, we controlled for health change in additional analyses. Since the variable neither showed any significant effects nor improved the model fit, it was excluded from the final analyses.

Interactions with previous activity in unpaid work

To investigate whether the association between paid and unpaid work varies with previous unpaid work, we performed additional analyses including interaction terms between paid work status and unpaid activity 10 years

earlier. The results indicate that previous engagement is indeed relevant, but in slightly different ways for the two forms of unpaid work. Figure 2 (and Table 3 in Appendix) shows the predicted probability of informal helping and volunteering in 2017 for the work status groups when considering previous participation in the same unpaid activity: grey dots for respondents who were not active in unpaid work in 2007 and black dots for those who were active. For the previously non-active, both work exit and part-time work are associated with a higher probability of providing informal help at follow-up than full-time work. For those who were active 10 years earlier, the negative coefficient of full-time work (Table 3, Model 1 in Appendix) is balanced out by a positive interaction term, meaning that the negative association between full-time work and informal help reported in Table 2 does not apply if full-time workers provided informal help 10 years earlier.

For volunteering, the association with work status also differs according to previous voluntary engagement, but here the difference concerns part-time and not full-time work. The negative correlation between volunteering (in 2017) and

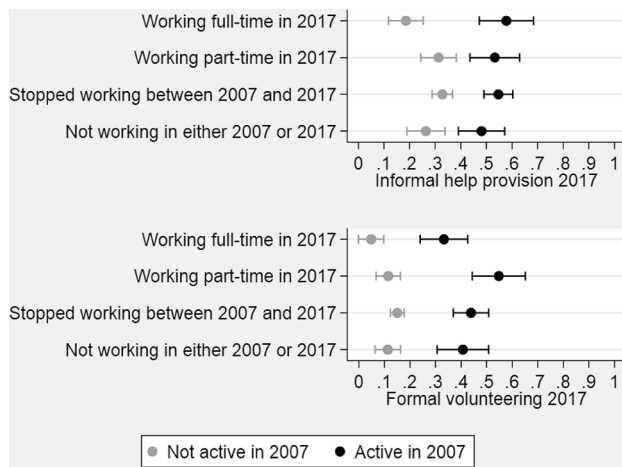


Fig. 2 Predictions of informal help provision and formal volunteering at least weekly at follow-up, by paid work status and engagement in the same unpaid activity in 2007 (95% confidence intervals)

full-time work compared with work exit between the waves is significant *regardless* of previous participation in volunteer work. This finding is illustrated by a non-significant interaction term between volunteering in 2007 and full-time work at follow-up (Table 3 in Appendix). For part-time work, on the other hand, earlier engagement matters. Part-time workers with a volunteer history (2007) have the highest probability of volunteering at follow-up, whereas part-time workers who did not volunteer 10 years earlier do not differ from the other groups.

Discussion

Active ageing has become a key policy response to increasing population ageing. One measure is to encourage extended working lives. A timely question then is whether a later work exit will come at the expense of contributions from older people to voluntary work and informal help—activities that are also considered central to society.

By following a sample of Norwegian seniors (aged 62–75 in 2017) over a 10-year period (from 2007 to 2017) and investigating their engagement in paid work, informal help and formal volunteering, our study has provided insights into patterns of competition and complementarity, as well as of continuity. Overall, we find that full-time employment is associated with a lower likelihood of regular engagement in unpaid work activities than both part-time work and work exit. This is perhaps somewhat surprising, given the less demanding nature of formal volunteering and informal help in Norway (similar to the rest of Scandinavia). However, for provision of informal help, the negative association only applies to individuals who were not providing help

10 years earlier. Full-time workers involved in informal help in 2007 do not differ from part-time workers or from those who left paid work during the 10-year period. Previous unpaid engagement is not only important for the association between paid and unpaid work; it is also a crucial predictor for participation in unpaid activities in general because it increases seniors' probability of providing both informal help and voluntary work considerably.

The negative association between full-time employment and unpaid work could be interpreted as a trade-off mechanism. However, the fact that individuals who have left the labour market are more likely to engage in unpaid work activities is not necessarily due to competition. It may simply be that when people leave paid employment, many start searching for new activities to engage in, perhaps because of the imperative of 'active ageing' or because they strive for some continuity in life, in line with Atchley's theory (Atchley 1989). Another argument against an unequivocal trade-off conclusion is that the negative association between full-time work and informal help does not apply for those with previous help provision experience. Combining full-time work with informal help provision seems far less complicated if one was already engaged in informal help 10 years earlier.

Our findings indicate that part-time employment is easier to combine with regular help provision and volunteering than full-time work. The fact that work hours make a difference could be interpreted as evidence of trade-off. On the other hand, it might be more of a complementarity phenomenon since part-time workers are more likely to continue voluntary work involvement than those who have left the labour market. The interpretation of the results is also a question of causal direction, which brings us to the strengths and limitations of our study.

Strengths and limitations

An advantage of longitudinal data is the possibility to follow the same individuals over time, and in our case, to uncover how previous paid and unpaid work behaviour and change in employment status matter for later activity patterns. Nonetheless, the causal relationship between paid and unpaid work is difficult to identify even with longitudinal data, and with our analyses we can only report statistical associations, not causal connections. Consequently, we do not know whether paid workers reduce their hours to have more time available for unpaid activities or whether long-term volunteers and informal helpers are inclined to work part-time. The same applies to the effect of work exit; engagement in unpaid work could be a result of having more time available after exit from paid work or it could be that individuals leave paid work to free up time for unpaid activities. Nor can we know whether those who continue paid work would have

acted differently had they retired earlier. Different mechanisms might also be at play between various activities. While some may compete, and perhaps contribute to, a withdrawal from paid work, other activities might first become an option after retirement.

Our study of how involvement in unpaid work varies with work exit benefits from the possibility to separate seniors retiring between the two waves from those not working in either wave. This is important because people who are out of work for a longer period might have fewer resources to be active in unpaid work than more recent retirees. Yet it is not possible to distinguish individuals who have been outside the labour market for most of their life from those who left work shortly before the first interview. Both groups are included in the variable ‘Not working in either 2007 or 2017’.

An additional limitation may be that people who participate in follow-up waves of longitudinal surveys are also more likely to contribute to other socially valued activities (Abraham et al. 2009; Hermansen 2018). As reported earlier, we found only minor differences in the shares providing unpaid work in Wave 2 between Wave 3 participants and those who dropped out. Even so, the possibility of a difference between the two groups at follow-up cannot be completely disregarded. However, although sample selection might influence the share of volunteers reported from surveys, it has proven to have little relevance for the effects of variables *explaining* volunteering (Amilon and Larsen 2020; Hank and Erlinghagen 2010).

Finally, this study was limited by the survey questions and instruments, which restricted the possibility for detailed analyses of the different types of paid and unpaid work activities the respondents were engaged in, and the motivations behind their involvement. In a recent article, Van Solinge et al. (2021) identify different routes to paid and unpaid work after retirement. They find that both the need for adjustment to role loss and the search for personal development motivate post-retirement engagement. Although the Norwegian context may allow for following internal motivations more than external needs, people’s life situations, opportunities and constraints will differ, and consequently, the degree of agency will vary from person to person. To expand our understanding of seniors’ involvement in paid and unpaid activities, future research may benefit from qualitative studies, as they may provide more in-depth insights into motivations and priorities, as well as obstacles, for active ageing.

Policy implications

In line with earlier research (e.g. Di Gessa and Grundy 2017; Erlinghagen 2010), our study confirms that the most significant predictor of regular participation in unpaid work is previous engagement in the same unpaid activity.

This finding suggests that when new generations of seniors approach retirement, they do not automatically start to engage in unpaid activities in which they did not previously participate. Hence, if the goal is to increase older peoples’ contributions in voluntary work, as well as in informal help and caregiving, stimulating combinations of paid and unpaid activities in late careers may be beneficial. If seniors are already involved in unpaid work before leaving the labour market, chances are they will continue to do so.

Knowledge about available options for engaging in unpaid work proves to be important, as not being asked to participate and not receiving information about the possibilities seem to constitute important barriers to volunteering among older age groups (Hansen and Slagsvold 2020). Governments and organisations should therefore target information to men and women approaching retirement age to facilitate voluntary work among seniors. In addition, partnerships between employers and the voluntary sector could be initiated to open the door to volunteering for older workers ahead of work exit. Stimulating volunteering among younger age groups may also prove fruitful. Hogg (2016) argues that if people are socialised into a volunteer identity earlier in the life course, they may more easily resume voluntary work later in life (referred to as serial volunteers).

In Norway, similar to the other Scandinavian countries, voluntary work is commonly connected to the fields of culture and leisure, and not to the welfare sector (Henriksen et al., 2019). However, as described earlier, one of the suggestions in the recent Norwegian reform ‘A full life—all your life’ is to increase voluntary work in the health and care services by recruiting men and women entering retirement. Whether this strategy will succeed is by no means guaranteed. As our results indicate, continuity matters. Continuity is not necessarily only about carrying on with voluntary work but may also be about continuity in the same type of unpaid work, and the health and care sector is perhaps not the most appealing for individuals with no experience from this field or from voluntary work in general. Furthermore, it is a sector that requires a certain regularity and stability, which may not be what new retirees are looking for. According to a recent Norwegian study, more than half of individuals in their sixties are only willing to volunteer if they can decide for themselves when and how much time to contribute (Hansen and Slagsvold 2020). And as reported earlier, although volunteering rates are relatively high in Norway, as in the rest of Scandinavia, the time use is more restricted.

The traditionally less demanding nature of unpaid work in Norway may imply a lower threshold for engaging in volunteer work and caregiving, and for combining unpaid work with paid employment. Yet reduced work hours at the end of the paid work career (referred to as phased or gradual

retirement) seem to make simultaneous engagement in the two spheres easier. Part-time work is not only advantageous because of the positive association with unpaid work; it is also presumed to be a strategy to encourage people to work longer (e.g. Wainwright et al. 2019). However, there is a risk of part-time work becoming a stepping stone into full retirement instead of leading to an extended working life (Hess et al. 2018). The causal mechanisms of part-time work, informal help and formal volunteering in late careers,

and their implications for the timing of labour market exit, are issues to be further explored in future research.

Appendix

See Table 3.

Table 3 Associations between paid and unpaid work: informal help (Model 1) and formal volunteering (Model 2)

	Model 1: Informal help (at least weekly) 2017		Model 2: Formal volunteering (at least weekly) 2017	
	Coef	SE	Coef	SE
Paid work status: (ref: Stopped working between 2007 and 2017)				
Not working in either 2007 or 2017	−0.064	0.043	−0.037	0.029
Working part-time in 2017	−0.015	0.041	−0.035	0.028
Working full-time in 2017	−0.143**	0.041	−0.103**	0.030
Interaction				
Not working in either 2007 or 2017* help 2007	−0.001	0.067		
Working part-time in 2017* help 2007	0.001	0.070		
Working full-time 2017* help 2007	0.174*	0.071		
Not working in 2007 or 2017* vol 2007			0.006	0.067
Working part-time in 2017* vol 2007			0.144*	0.069
Working full-time in 2017* vol 2007			−0.003	0.064
Informal help (at least weekly) in 2007	0.219**	0.035		
Formal volunteering (at least weekly) in 2007			0.288**	0.038
Informal help (at least weekly) in 2017			−0.034	0.019
Formal volunteering (at least weekly) in 2017	−0.058	0.031		
Control variables				
Education (ref. < college/university)	0.019	0.024	0.054**	0.019
Lives with partner	0.110**	0.029	0.002	0.022
Subjective health status (ref. < very good)	0.031	0.024	0.059**	0.018
Gender (ref. male)	−0.041	0.024	0.034	0.018
Age (ref: 62–64)				
65–66	0.059	0.037	−0.013	0.029
67–68	0.041	0.040	−0.006	0.030
69–70	0.000	0.040	0.015	0.031
71–72	−0.046	0.041	0.019	0.032
73–75	−0.076	0.043	0.022	0.033
Constant	0.251**	0.042	0.088**	0.032
Number of observations	1625		1625	
R^2	0.096		0.121	

Linear probability model with interaction between previous unpaid work and paid work status

** $p < 0.01$, * $p < 0.05$

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Compliance with ethical standards

Conflicts of interest The authors declare that they have no conflict of interest.

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Hanna Vangen og Katharina Herlofson. Why Care? How filial responsibility norms and relationship quality matter for provision of care to ageing parents.

Under review in Ageing and Society

Why care? How filial responsibility norms and relationship quality matter for subsequent provision of care to ageing parents

Abstract:

In Norway, eldercare is by law a public responsibility. Despite this, a large share of adult daughters and sons help older parents when in need of care. The research literature has emphasised different perspectives explaining why adult children take care of their parents. In this study we focus on two of these perspectives: filial responsibility norms and the quality of the parent-child relationship. Based on longitudinal data from two waves of the Norwegian Life Course, Ageing and Generation Study (2007 and 2017), we investigate whether previous attitudes towards filial responsibility and perceived quality of the relationship (in 2007) are associated with subsequent caregiving to ageing parents (in 2017). The analyses show no evidence of a correlation between adherence to filial responsibility norms and provision of help and care ten years later. Previous perceived quality of the relationship, on the other hand, is associated with provision of help and care from daughters. We conclude that within the context of a comprehensive welfare state, caregiving is apparently more of an individual choice than a societal prescription.

Keywords: intergenerational relationships, parent-child relationships, filial responsibility, relationship quality, gender

Introduction

In Norway, eldercare is by law a state responsibility. The Norwegian welfare state is characterised by universal access to health and care services provided by the municipalities, and older people are thus entitled to receive assistance from the public health and care services when needed (Daatland and Lowenstein, 2005; Patients' Rights Act, 1999 §2-1a). Correspondingly, adult children have no legal obligation to support parents in need of help. Nonetheless, a large share of adult daughters and sons provides help and care to their parents. Estimates show that informal care amounts to approximately 40 per cent of total care provision in the country, thus constituting an important part of the care system (Holmøy, Otnes and Haugstveit, 2016).

Given that care provision is not a legal family obligation and that formal alternatives are available, adult children's personal motivations may weigh more when they decide to help their ageing parents. One explanation why the family is still an important provider of older members' needs is that norms of filial responsibility remain firm, independent of formal obligations and organisation of formal care (Daatland and Herlofson, 2003). As an alternative to explanations based on norms or individual attitudes, scholars have emphasised the importance of relationship quality (e.g. Rossi and Rossi, 1990; Bengtson, 2001) and commitments within families that develop over time (Finch, 1989). To better understand why adult children continue to take part in care provision despite extensive formal services being available, the current study addresses the motivations and beliefs that may guide their caregiving behaviour: *Do attitudes towards filial responsibility and relationship quality matter for subsequent provision of regular help and care to mothers and fathers?* To answer our question, we use data from two waves (2007 and 2017) of the Norwegian Life Course, Ageing and Generation Study (NorLAG).

Previous research shows that informal care is more often provided by daughters than by sons (Grigoryeva, 2017; Haberkern, Schmid and Szydlik, 2015). This is also the case in Norway, despite a relatively high level of gender equality (Herlofson and Ugreninov, 2014; Hook, 2006). Not only may daughters and sons experience different obstacles to and expectations of care provision (Jakobsson et al., 2016), they may also have different motivations for helping their parents. In order to investigate whether the associations in question differ between daughters and sons the analyses will be carried out separately by gender.

Background

Societal changes and intergenerational ties

Norms of filial responsibility – the perception that children ought to help parents in need of care – have long been of interest to social scientists (Marks and Kang, 2016). The initial reason for this interest was the concern that the modernisation of society and the subsequent loosening of traditional norms and values would make younger generations abandon their parents once frail and in need of help. More recently, increasing population ageing has reinforced concerns about the future of eldercare. These concerns relate not only to the possible lack of employees in future health care services, but also to the capability and willingness of families to fill the gap between existing needs and formal service provision (Colombo *et al.*, 2011). The latter concern is not totally unfounded; some studies have in fact identified a trend towards less support for filial responsibility over time (Gans and Silverstein, 2006; Herlofson *et al.*, 2011).

The uncertainty regarding families' willingness to care for their older members may partly build on historical changes in family structure. The sociological history of the family is often described as the emergence and decline of the nuclear family as a product of the industrial revolution that was transformed into more heterogeneous forms throughout the 20th century (Beck and Beck-Gernsheim, 2002; Bengtson, 2001; Furstenberg, 2020; Parsons, 1955). But instead of intergenerational family bonds losing their strength, as predicted by Parsons (1955), Bengtson (2001) argued for an increasing importance of family relationships beyond the nuclear unit in contemporary societies. Studies conducted in this field of research in the last decade seem to confirm Bengtson's prediction (Fingerman, Huo and Birditt, 2020). One could argue that the reinforcement of intergenerational relationships may be rooted in the same demographic changes that caused concern about the sustainability of ageing societies in the first place.

Ongoing changes in fertility and mortality patterns, commonly referred to as population ageing, have altered the composition of families and, thereby, the structural conditions for intergenerational interaction. Children today have fewer siblings but share a longer period of their life with parents and grandparents, a process described as the 'verticalisation' of families (e.g. Hagestad 1986). Several scholars have argued that this development has resulted in intergenerational ties becoming more tightly knit rather than weaker (Bengtson, 2001; Fingerman, Huo and Birditt, 2020). Also, the 'feminisation' of population ageing, caused by the gap in life expectancy between men and women, has

resulted in longer-lasting intergenerational relationships between female family members than between male (Dykstra and Hagestad, 2016; Herlofson and Hagestad, 2011). This issue has received little attention as a potential driver of gender contrasts in family caregiving, as differences between men and women are commonly identified as cultural constructs or considered to be related to welfare policy (Haber Kern, Schmid and Szydlik, 2015), and not to changing demographics (Herlofson og Hagestad, 2011; Hagestad and Dykstra 2016). The increased importance of intergenerational relationships may work as a buffer to the reduction in care responsibility norms inherent in traditional families, but will not necessarily result in a more equal distribution of caregiving obligations between men and women.

Caregiving in the Norwegian context

This article departs from the notion that macro trends are reflected in individual behaviour and its motivations at the micro level. Solidarity between generations in contemporary Norway takes place in a context where caring for adults is a public responsibility. In Saraceno and Keck's framework (2010), Norwegian eldercare policy is characterised by 'de-familialisation', as high levels of public services and pensions enable individual autonomy and lessen families' caregiving responsibilities. A commonplace view used to be that extensive welfare states posed a threat to the moral obligations of families by taking over the support of frail family members (Wolfe, 1989), and that the family had 'lost its functions' to formal organisations – a view that was later contested (Litwak *et al.*, 2003). Instead of a function drain, Hagestad (1996) argued that there has been a 'function filling' of the modern Norwegian family. Although not regarded as the main responsible for long-term help and care (Daatland and Herlofson, 2003), the family constitutes a more flexible safety net that can be easily activated in times of need – a flexibility lacking in public welfare services (Hagestad, 1996, p. 55). Actually, comparative research has revealed that in countries with more extensive services, such as Norway, more people are engaged in providing informal help and care than in countries where the main care responsibility lies within the family (Brandt, 2013; Brandt and Deindl, 2013; Daatland and Herlofson, 2004; Verbakel, 2018). When formal services are responsible for the intensive caregiving tasks, adult children have more time to provide other types of support, such as practical help and emotional comfort, and then on a less frequent basis than what is required for personal care, which usually is a daily commitment.

Previous studies have shown that the norm of taking care of parents in need has considerable support in countries with generous welfare arrangements (such as Norway), yet not as much as in less developed welfare states (Daatland and Herlofson, 2003). Norms and behaviour are not necessarily connected. The association between filial responsibility norms and provision of help to parents has been found to be weaker in some countries (including Norway) than in others (Lowenstein and Daatland, 2006), and within Norway, weaker for women than for men – with women being less supportive of such norms, but at the same time, more inclined to provide help (Daatland and Herlofson, 2003; Herlofson *et al.*, 2011). Lowenstein and Daatland (2006) suggested that filial norms are more open to negotiations in Norway (and similarly in England and Germany) than in countries further south (i.e., Spain and Israel) where such norms have a more prescriptive effect on help provision.

When families are relieved of full responsibility for supporting dependent family members, their personal motives and perceptions of the relationship may become more important than general norms and obligations. Stuifbergen *et al.* (2010: 264) state that ‘obligations may be experienced as less pressing when they are felt to be one’s “own”’. According to Hagestad, there are few normative expectations governing parent–adult child relations in Norway (Hagestad, 1996: 56). An alternative explanation of why children provide help and care to their parents may therefore be that the two generations have a long-lasting close relationship and that children help their parents more out of affection and love than out of a sense of duty.

How filial responsibility and relationship quality are associated with help and caregiving

Previous research on the motivations for caregiving has often addressed filial obligations and relationship quality separately. Studies on associations between attitudes towards norms of filial responsibility and actual support patterns differ substantially; some have found positive associations between the two (Haber Kern, Schmid and Szydlik, 2015; Ikkink, Van Tilburg and Knipscheer, 1999; Silverstein, Gans and Yang, 2006; Stuifbergen, van Delden and Dykstra, 2008), some have found no associations (e.g. Chappell and Funk, 2012; Eggebeen and Davey, 1998; Lee, Netzer and Coward, 1994; Peek *et al.*, 1998) or results are mixed across countries (Cooney and Dykstra, 2011; Lowenstein and Daatland, 2006). Several studies report that the association is dependent on the caregiver’s gender, but conclusions differ regarding which gender is more likely to be influenced by norms. For instance, both Silverstein, Gans and Yang (2006) and Haber Kern, Schmid and Szydlik (2015) found that parents’ adherence to

filial responsibility norms predicted the caregiving behaviour of daughters more than of sons. Silverstein, Gans and Yang (2006) found the association for daughters using their longitudinal US sample, while Haberkern, Schmid and Szydlik (2015) used data aggregated to the country level in several European countries and, therefore, the results reflect the distribution of cultural norms more than individual motivations. Norwegian and Dutch studies based on data addressing self-reported attitudes and support behaviour among adult children, found that the association was stronger for sons than for daughters (Herlofson *et al.*, 2011). These results indicate that responsibility norms may have a stronger motivational component for sons than for daughters when it comes to actual provision of support in the Norwegian context.

Research on how relationship quality matters for provision of support to parents has sometimes been based on the 'affectual dimension' (emotional closeness and positive sentiments) of the intergenerational solidarity model by Bengtson and Roberts (1991). A longitudinal study by Pillemer and Suitor (2014) found a positive effect of emotional closeness measured seven years before actual support provision. This study was based on mothers' perceptions of their children's support behaviour and of the relationship quality. In Norway, Gautun (2003) studied whether relationship quality throughout life, as perceived by adult children and measured retrospectively, was important for caregiving. The study did not show any clear association between the assessed relationship quality and caregiving, which may be due to the relatively small data set.

Some studies, all using cross-sectional data, have included both filial responsibility and relationship quality in analyses of adult children's support. Stuifbergen, van Delden and Dykstra (2008), using Dutch data from the adult child's perspective, showed that both filial responsibility and relationship quality were associated with practical and social support to parents, however, relationship quality turned out to be the most powerful predictor. Cooney and Dykstra (2011), also using child-derived data, found both family obligation and relationship quality to be correlated with support to parents in the United States but *not* in the Netherlands. They concluded that individual preferences seem more important than generalised obligations in motivating intergenerational exchanges in the Netherlands compared with the United States. In a study of different cultural groups in Canada, Chappel and Funk (2012) found no association between caregiving and neither filial attitudes nor relationship quality. However, both dimensions were associated with emotional support.

As shown above, previous findings on the importance of filial responsibility and relationship quality on provision of help and care to parents are inconsistent. One explanation

be may that contextual variations lead to contrasting conclusions in studies conducted in different countries. Another reason for the diverging results is that study designs vary. First, most of the analyses conducted on the associations between adherence to filial norms, relationship quality and actual support have been based on data from parents and not on data from children. Still other studies have used measures of filial obligation norms aggregated to the country level to predict caregiving behaviour. In order to study the relationship between attitudes and actual behaviour among adult children, child-derived data are better suited than data aggregated to the country level or data from parents (the care receivers), given that it is the children who are the actual care providers. Furthermore, a considerable number of analyses has been based on cross-sectional data, which make it difficult to identify a causal impact of attitudes on behaviour since correlations may also reflect an adjustment of attitudes to actual behaviour. To study the extent to which attitudes predict future caregiving, longitudinal data that measure attitudes at a prior point in time (i.e. before actual care provision) are more appropriate (Bengtson and Roberts, 1991). The same argument may hold for relationship quality.

According to Finch (1989), the distribution of care responsibilities is performed through 'silent negotiations' within families., Such negotiations commonly take place over a longer time span between individuals who are related to each other and whose role expectations towards one another have evolved over time. Past experiences and the relationships in which people are embedded throughout their life course are important in creating expectations of and motivations for caregiving in later life (Paulson and Bassett, 2016). One example is that parents may invest in their children's 'moral capital' by socialising them into values of filial responsibility in order to increase the chance that their children will provide support for them in the future (Silverstein, Conroy and Gans, 2012). Another example is that a good quality of the relationship between parents and children established early on in life provides the basis for care motivated by love and affection when roles are reversed and parents become in need (Funk, 2012). Both examples illustrate how both filial obligations and experiences of relationship quality are commonly established long before caregiving takes place.

To sum up, previous research has shown a need for research on the motivations behind adult children's caregiving that are based on their own perceptions of filial responsibility and of the quality of the relationship with their parents. Since both factors develop over time

within the parent-child-relationship, associations should preferably be studied from a longitudinal perspective.

Data and methods

Data source and study sample

To address how filial responsibility norms and relationship quality matter for providing regular help and care to parents ten years later, we use data from Wave 2 and Wave 3 of the Norwegian Life Course, Ageing and Generation Study (NorLAG) conducted in 2007 and 2017. Due to a large refresher sample, the second NorLAG wave is considered nationally representative. The study consists of people aged 50 or older in 2017. In the 2007 study, 9,238 respondents participated, of which 5,711 were re-interviewed in 2017 (Veenstra *et al.*, 2021). Participants with at least one parent still alive in 2017 (899 daughters and 840 sons) are included in the analyses. To study relationships between daughters/sons and their parents, parent-child dyads are used as the unit of analysis. This makes it possible to control for the characteristics of both adult children and their parents, as well as the characteristics of their relationship the way the adult child conceives it. Consequently, respondents with both parents alive are represented with two observations, resulting in a study sample consisting of a total of 2,301 dyads (795 daughter-mother, 403 daughter-father, 738 son-mother and 365 son-father dyads) representing 1,739 respondents. Since respondents with two living parents are included twice, standard errors are corrected by using the clustering function of the Stata 14 programme. 107 dyad observations are excluded due to missing values on one of the variables included in the analyses.

Measurements

Dependent variable

The dependent variable, indicating whether respondents provided help with daily chores or personal care to their mother/father at least weekly in 2017, is coded as a dummy variable. The variable is derived from several questions asked in a computer-assisted telephone interview (CATI): ‘Have you in the past year regularly helped someone with personal care, like eating, getting out of bed, getting dressed, or going to the toilet (not including children)?’, and: ‘Have you in the past year regularly given practical help to people who you don’t live with?’. In follow-up questions on provision of personal care and practical help, respondents had to specify who they helped and how often. Respondents with parents still alive were asked about the help and care needs of their mother/father. If a need was reported,

respondents received a question about whether they provided help to the parent, and if so, how often, thereby supplementing the previously described questions on help and care provision. All information about help and care are combined into one variable indicating whether the respondent provided help or care at least weekly to the parent in question (= 1) or not (= 0).

Independent variables

The independent variables in the analyses, filial responsibility and relationship quality, were both assessed in 2007, ten years before the measurement of the outcome variable. *Filial responsibility* is based on a question about agreement with the following statement: ‘Children should take responsibility for providing care to parents if parents are in need’. The response was given on a 0–10 scale, with 0 indicating ‘strongly disagree’ and 10 ‘strongly agree’. The question does not specifically address respondents’ individual situations and is therefore also relevant in cases of no reported need. The second independent variable addresses the perceived *relationship quality*, measured by the question: ‘On a scale from 0 to 10, where 0 means “Not satisfied at all” and 10 means “completely satisfied”, how satisfied are you, on the whole, with your relationship to your mother/father?’.

Control variables

The probability of providing care to parents has been shown to be related to numerous individual, relational and familial level factors. In general, a parent’s need for care is a key predictor of caregiving (Broese van Groenou and De Boer, 2016). In our analyses, we control for parental need for help or care by using a variable based on the following questions: First, the respondents were asked whether the parent was limited in her/his ability to carry out everyday activities because of a physical or mental health problem or a disability. If so, they received two follow-up questions about: a) whether the parent needed help with daily activities such as housework, shopping and transport because of his/her limitations, and b) whether the parent needed help with personal care. The answers are combined into a dichotomous variable with the value 1 if the respondent answered ‘yes’ to one of the two follow-up questions and 0 if the parent was not limited or if the respondent answered ‘no’ to both questions about the parent’s need for help or care. When care needs arise, the presence of potential caregivers is important, and within families the spouse is often the preferred informal caregiver over adult children (Stafford and Kuh, 2018). Whether the parent lived

alone or with a partner is measured by a variable based on the question: ‘Does your mother/father live alone?’ (1 = ‘Yes’; 0 = ‘No’). An adult child is more likely to provide care if the parent needing care is a mother, especially if she is a daughter (Grigoryeva, 2017), and the parent’s gender is therefore also included in the analyses.

Adult children’s own household and employment situation may represent competing roles and responsibilities. Living with a partner, as well as having children in the household, have been shown to be negatively associated with care provision (Leopold, Raab and Engelhardt, 2014), also in Norway (Lowenstein and Daatland, 2006). Adult children’s family commitments are therefore controlled for by including dummy variables representing whether respondents lived with a partner (= 1) or not (= 0) and whether they had children in the household (1 = children; 0 = no children). Furthermore, having sisters reduces the probability of providing care (Grigoryeva, 2017). Hence, two variables indicating whether or not the child had sisters and brothers are included to control for other potential family caregivers. In addition, employment may impede adult children, particularly daughters, from engaging in caregiving (Carmichael, Charles and Hulme, 2010). Previous research indicates that in Norway, paid work does not prevent care provision. However, caregiving daughters are more inclined to work part-time (Daatland, Veenstra og Lima, 2010) and they are also more likely to experience a reduction in income if they have parents who are approaching the end of life (Vangen, 2020). Controlling for employment and full-time work represents the reference category with one dummy variable indicating not employed (= 1) and another part-time work (= 1). The respondents’ age and age² are also included. Finally, geographical distance is recognised as an important predictor of caregiving (Stafford and Kuh, 2018) and is therefore controlled for by including a dummy variable indicating a short distance to parents (within 50 km = 1).

Analyses

To estimate the probability of providing care, we use a multivariate linear probability model. This model is preferred over non-linear models for reasons of interpretation (Wooldridge, 2014). For sensitivity purposes, we have also conducted logistic regression analyses (findings available upon request). Furthermore, we have performed analyses with all control variables measured in 2007 instead of 2017, which did not change the results regarding the association between the dependent and independent variables. The analyses are carried out separately for daughters and sons, but additional analyses of the full sample, including an interaction term

between the children's gender and the independent variables, have been conducted to explore differences between daughters and sons (available upon request).

Results

Descriptive statistics

Table 1 confirms that weekly provision of help or care is somewhat more prevalent among daughters (15%) than among sons (12%). When studying care provision to mothers and fathers separately, the gender difference is only significant for care to mothers: 17 versus 13 per cent. For care to fathers, the share is identical: ten per cent among both daughters and sons. Sons have a higher mean score than daughters on both the filial responsibility and the relationship quality scale. The parent represented in the dyads is more often a mother, reflecting that children aged 50 years and older are more likely to have a mother still living than a father, in line with the feminisation of population ageing argument referred to above.

< Insert Table 1 about here >

Table 2 presents the results of the analyses of help and care provision in 2017 regressed on filial responsibility and relationship quality in 2007, and conducted separately for daughters and sons. The table shows no association between previous filial responsibility norms (2007) and care provision ten years later (2017), neither for daughters nor for sons. This finding supports the assumption that general filial responsibility norms have little impact on actual caregiving behaviour in contemporary Norway. Turning to the next variable in focus, the results indicate that a good relationship with the parent is a predictor of subsequent help and caregiving. The analyses reveal a significant and positive association between daughters' perceived quality of the relationship with their parent in 2007 and the probability of providing care ten years later. For each unit's increase on the 10-point responsibility scale, the probability of providing care in 2017 rises with 1.2 percentage point. For sons, the association between relationship quality and caregiving is also positive, but not significant. Additional analyses using an interaction term between gender and relationship quality shows no significant gender difference in how relationship quality matters for caregiving.

Regarding parent characteristics, parental needs seem to be the most important predictor of both daughters' and sons' caregiving. The variable indicating whether the parent lived alone is also associated with a higher probability of providing care. If the parent in the

dyad is a mother, daughters are more likely to provide care than if the parent is a father, but parental gender does not seem to matter for sons' caregiving behaviour.

Adult children's household structure and employment status do not show any significant associations with caregiving practices. For age, there is a curvilinear association for daughters, but not for sons. This means that for daughters, the probability of providing care rises with age to a top point followed by a decreasing trend. Geographical distance is important; living within 50 km from a parent means a 16-18 per cent higher likelihood of providing care than if the parent lives further away.

< Insert Table 2 about here >

Robustness assessment

As a sensitivity test of the dependent variable, analyses with a measure of at least monthly, instead of weekly, care were conducted, showing the same tendency as the original analyses. Additional analyses using mixed models and hybrid models separating between- and within-individual effects over time were conducted using the monthly care as the dependent variable because of the more strict demand for comparable data across waves in such models. Additionally, analyses with the monthly measure of care were conducted using structural equation modelling in order to evaluate the effect of a latent construct of filial responsibility including a larger set of indicator variables and to evaluate indirect effects in the model. The conclusions from these approaches point in the same direction as the analyses presented above: no association between filial responsibility and caregiving when analysed over time, and a significant association between relationship quality and caregiving. The original approach was chosen as it is the most parsimonious and the easiest to interpret.

Discussion and conclusion

The aim of this paper was to examine whether adult children's caregiving behaviour is shaped by previous adherence to filial responsibility norms and perceived quality of the relationship with parents. The results reveal that over time, there is no association between earlier filial responsibility norms and subsequent provision of help and care. This might be somewhat surprising, but is in line with previous research, which has provided rather mixed results regarding the importance of such norms for actual caregiving behaviour. The absence of a significant association between filial responsibility norms and caregiving might be related to

the 'cultural climate' in which intergenerational relationships are played out in Norway. A comprehensive welfare state like the Scandinavian, allows for more independent and choice-based intergenerational relations. The results of this study indicate that in such a context, the quality of relationships is more important than responsibility norms for middle-aged children's provision of help and care to parents. Nevertheless, the most important predictor for caregiving is parents' needs for care, and our findings confirm that in Norway, adult children often constitute a safety net, ready to be activated the day care needs arise.

The association between relationship quality and caregiving turned out to be significant only for daughters. However, since additional analyses showed that the association did not differ significantly from that for sons, it could not be confirmed that relationship quality is less important for sons. Although motivations for caregiving were not clearly related to the adult child's gender, the gender composition of the dyad turned out important. For daughters, the probability of providing care was higher if the parent was a mother, while parent's gender was not related to sons' care provision. In order to address gender inequality in caregiving responsibilities, one must acknowledge that not only cultural norms about gender and caregiving, but also demographic patterns may explain why more women engage in caregiving, since mothers tend to outlive fathers (and consequently have no partner available as caregiver, unless repartnered). Having sisters has previously been shown to reduce the likelihood of providing care, but this finding was not confirmed here. In a recent study, Vergauwen and Mortelmans (2021) found the gender composition of the sibling group to be more important for care provision in countries characterised by stronger family and gender norms, supporting the result of our analyses.

Previous literature on informal help and care have often focused on how other roles and obligations compete for the potential caregiver's time and resources. This study found no significant associations between adult children's employment or household composition and the probability to provide care. This might be another indication of the welfare state contributing to the work-family balance, and of informal caregiving being based on more personal motivations than on general legal and cultural obligations.

The results confirm previous research showing that geographical closeness is an important predictor of help and caregiving. Trends of urbanisation, also evident in Norway, are challenging the opportunity for interaction between adult children and parents who live far apart. One reason could be that people take the travelling cost and time into consideration when deciding to give care. However, a reverse effect may also apply if geographical

closeness is the result of the two generations moving closer to one another (Fevang, Kverndokk and Røed, 2012; Leopold, Raab and Engelhardt, 2014; Van Diepen and Mulder, 2009).

Despite high levels of formal care services in Norway, the available services are not exhaustive, and there is still a substantial need for informal care that supplements formal services. The trend in several welfare-intensive welfare states during recent years, is characterised by de-institutionalisation and restrictions on formal service provision, and thereby increasing needs for help from families (Ulmanen and Szebehely, 2015; Van Den Broek, Dykstra and Van Der Veen, 2019). Norway is also seeing a shift towards de-institutionalisation, albeit less radical than in Sweden and Denmark (Daatland, Høyland and Otnes, 2015). It is an open question whether this trend will increase the pressure on informal caregivers in Norway in the coming years. How the association between motivations for caregiving and actual support patterns are affected by changes in the welfare services is a question for further research.

The analyses presented here are based on data from Norway. However, the results may also be of relevance in contexts where the imperative to care for one's parents is more established both culturally and legally. Our study shows that support of a general responsibility norm is not necessarily reflected in adult children's behaviour. When estimating informal care contributions from future generations of adult children, factors other than cultural or legal obligations should also be taken into consideration, such as the relational qualities of intergenerational ties.

Strengths and limitations

The present study has the advantage of addressing both the motivations for and the provision of caregiving from the perspective of the adult children, the care providers, and not the perspective of the receivers of support, the parents. Another advantage is the use of longitudinal data. The time distance between the measurement points – ten years – allows for considering how prior established norms and perceptions of relationship matter for subsequent caregiving. However, the method used in this paper does not allow for drawing causal conclusions.

An alternative interpretation of the results presented in this study is that in the Norwegian context, where there are few, if any, general norms guiding caregiving behaviour in the family, people may invest more in intergenerational relationships, both emotionally and

materially, to ensure that someone will care for them when needed. Consequently, previous support from parents in terms of financial and practical support (including help with childcare) may contribute to the perception of the relationship and confound the association between relationship quality and support from adult children. The flow of help and support from the older generation to the younger takes place in a longer timeframe than the ten-year perspective of this study and would demand more detailed data than the ones employed here.

The distance in time between the two waves is also relatively long, and the possibility that perceptions of obligations and relationship quality have changed during this period cannot be ruled out. The lack of correlation between filial responsibility and caregiving ten years later could indicate fluctuating perceptions rather than an absence of association. For the purpose of foreseeing the potential for informal caregiving in the future, this study shows that filial obligation is not reliable as a predictor. However, caution should be exercised in concluding that there is *no association* whatsoever between filial obligations and caregiving behaviour from these results.

The results did not show any association between employment status and care provision. However, there might still be subgroups of the population experiencing greater difficulties in combining work and care. Because of the restricted sample size, it was not possible to go into detail about how motivations may differ according to e.g. social background.

Since this study takes the perspective of adult children, it does not capture whether parents with weaker ties to their children, establish stronger relationships with others, such as extended kin, friends and neighbours. Thus, more research is needed on whether people with poor or estranged relationships with their adult children are more vulnerable in old age than those who have a good relationship with their adult children.

Conclusion

This study shows that relationship quality is important for informal eldercare, indicating thereby the persistence of intergenerational solidarity in Norwegian families. Filial responsibility norms, on the other hand, do not seem to matter for subsequent informal provision of help and care, and consequently, future caregiving cannot be predicted on the basis of support for such norms. Instead of eroding intergenerational solidarity, a comprehensive welfare state seems to be a prerequisite for adult children's caregiving to

ageing parents. Within such a context, caregiving is apparently more of an individual choice than a societal expectation.

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Tables:

Table 1. Descriptive statistics.

	Daughters	Sons	T-test
	<i>Means (SD) or percent</i>		
Provision of weekly help or care (2017)	15.0%	11.9%	*
- to mother ^a	17.4%	13.0%	*
- to father ^b	10.0%	9.6%	-
Filial responsibility (2007)	5.51 (2.83)	5.97 (2.75)	**
Relationship quality (2007)	7.93 (2.14)	8.17 (1.87)	**
Parent characteristics:			
Parent needs help or care (2017)	32.2%	31.2%	-
Parent lives alone (2017)	45.3%	45.9%	-
Mother	66.8%	67.3%	-
Child characteristics:			
Lives with children in the household (2017)	36.1%	43.4%	**
Lives with a partner (2017)	75.4%	82.1%	**
Has sister(s) alive (2017)	68.1%	70.8%	-
Has brother(s) alive (2017)	72.9%	67.6%	**
Employment:			
Works full-time (2017)	57.5%	79.3%	**
Works part-time (2017)	25.0%	8.7%	**
Not working (2017)	17.6%	12.0%	**
Age (2017)	56.02 (4.87)	56.39 (5.01)	-
Geographical distance:			
Lives more than 50 km from parent (2017)	36.4%	32.7%	-
Lives within 50 km from parent (2017)	63.6%	67.3%	-
Number of observations (dyads)	1.145	1.049	

Notes: SD = standard deviation, a = per cent of child-mother-dyads only, b = per cent of child-father-dyads only.

Significance levels: *p < 0.05, **p < 0.01

Source: The Norwegian Life Course, Ageing and Generation Study (NorLAG) Waves 2 and 3.

Table 2. Multivariate linear regression of weekly help and care to parents in 2017.

	Informal help and care 2017			
	Daughters		Sons	
	B	R. SE	B	R. SE
Filial responsibility ^a	0.003	0.004	0.000	0.004
Relationship quality ^a	0.012**	0.004	0.007	0.005
Parent characteristics:				
Parent needs help or care ^b	0.231***	0.026	0.163***	0.026
Parent lives alone ^b	0.068**	0.022	0.050*	0.021
Mother ^b	0.033*	0.016	-0.007	0.015
Child characteristics:				
Children in household ^b	-0.023	0.023	0.012	0.024
Lives with a partner ^b	0.013	0.025	-0.026	0.030
Sister(s) ^b	-0.044	0.024	0.007	0.022
Brother(s) ^b	-0.035	0.025	-0.038	0.024
Employment ^b (ref: Working full-time ^b)				
Working part-time ^b	0.013	0.026	0.046	0.042
Not working ^b	0.012	0.028	0.020	0.038
Age ^b	0.083*	0.040	0.022	0.054
Age squared ^b	-0.001*	0.000	-0.000	0.000
Geographical distance (ref: distance over 50 km ^b)				
Lives within 50 km from parent ^b	0.184***	0.018	0.162***	0.017
Constant	-2.581	1.150	-0.712	1.570
Number of observations	1 145		1 049	
R2	.199		.130	

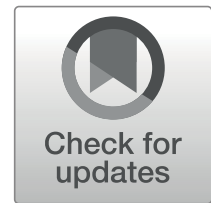
Notes: a = measured in 2007. b = measured in 2017. R.SE = Robust standard error.

Significance levels: ***p < 0.001 **p < 0.01, *p < 0.05

Source: The Norwegian Life Course, Ageing and Generation Study (NorLAG) Waves 2 and 3.

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The Impact of Informal Caregiving on Labour Supply Before and After a Parent's Death

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Abstract

Most European countries are facing an ageing population, which points to a need for having as many people as possible of employable age working full time. The growing number of older people increases the pressure on health and care services as well as on family caregivers. Adult children are important care-providers in their parents' final years. This study investigates how having a parent in need of care affects sons' and daughters' labour market participation. The question is investigated by analysing longitudinal data from the Norwegian life course, ageing and generation study. The empirical strategy is first to use register information about parents' demise as an indicator for amplified care needs in the period prior to their death and explore patterns in labour market participation (employment and earnings) before and after the death of a parent. Then, register data are combined with survey data in order to separate caregivers from non-caregivers prior to the loss of a parent. The analyses show a negative employment trend in the years before and after the loss of a lone parent. They also show a different development in earnings between caregivers and non-caregivers. Caregivers have a weaker development in earnings both before and after the death of their parent compared to non-caregivers. The study concludes that caring for older parents has a negative impact on the children's labour market participation in both the period with substantial caregiving needs and the period following the parents' demise.

Keywords Family care · Older parents · Employment · Earnings · Gender · Norway

Introduction

This paper investigates the impact of providing care to older parents on adult children's labour market participation in Norway. With ongoing population ageing, the share of older people in the population increases, and consequently, the number of individuals in

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need of health and care services is expected to grow. Simultaneously, more women are participating in the labour market (Colombo et al. 2011). Overall, the increase in the number of older men and women is expected to cause a shortage of family caregivers, as well as health and care personell. Thus, policymakers across Europe have started to stress policies that promote later retirement and encourage family care (Ministry of Health and Care Services 2011; Foster and Walker 2015; Moussa 2019). There is, however, a potential conflict between such policies and experiences of conflicting demands may be a possible outcome at the individual level. Employees with parents in need of care may face increasing pressures for providing care while at the same time being expected to remain in full-time employment until retirement age. Knowledge about how people adapt to such a situation is of importance for policymakers who are aiming at creating a sustainable welfare state and preventing inequality (Ulmanen and Szebehely 2015; Gautun and Bratt 2016; BIRTHA and Holm 2017; COFACE 2015).

Previous research has documented a negative relationship between caregiving demands and labour supply (Bauer and Sousa-Poza 2015; Moussa 2019; Gautun and Bratt 2016). However, this association varies between men and women and across national contexts. The effects of caregiving are found to be larger for women than for men (Bauer and Sousa-Poza 2015), and weaker in the Nordic countries (Kotsadam 2011). In the Nordic countries, long-term care is a public responsibility and both men and women have a high participation in the labour market compared to countries further south in Europe. A negative impact of caregiving on labour market participation may threaten the sustainability of the welfare system if such societies move towards relying more heavily on family care (Verbakel 2017).

The primary objective of this paper is to increase knowledge regarding how caregiving to old parents in need of care affects adult children's labour market outcomes (employment and earnings). The question is investigated by analysing longitudinal data from the Norwegian study of life course, ageing and generation (NorLAG). NorLAG offers individual survey data on provision of help and care to parents combined with annual register data on employment and earnings for the years prior to and after the loss of parents. Thus, the data provides the possibility to investigate how actual care provision to parents is related to labour market participation over a period of up to 30 years of adult sons' and daughters' life.

Family Care and Labour Market Participation

Until the 1990s, research on issues regarding the combination of work and family care traditionally focused more on combining paid work and care for young children (Leira 1996) than on combining employment and care for older family members (Kotsadam 2011). When scholars started to address how adult children's care obligations to elderly parents affected their labour market participation, most research was undertaken in the US and UK (Gautun and Bratt 2016). In recent years, studies have been extended to many other countries (Bauer and Sousa-Poza 2015; Kotsadam 2011; Kröger and Yeandle 2013; Moussa 2019), including Norway (Gautun and Hagen 2010; Daatland et al. 2010; Gautun and Bratt 2016; Ugreninov 2013; Jakobsson et al. 2013; Fevang et al. 2012; Kotsadam 2012; Abrahamsen and Grøtting 2019; Løken et al. 2017).

Research shows that caregiving has consequences for labour supply at both the extensive and the intensive margin. Caring for older parents might have a negative

effect on employment probability (Fevang et al. 2012; Crespo and Mira 2014), but employment can also prevent adult children from engaging in caregiving (Carmichael et al. 2010). For those in employment, one strategy for coping with caregiving is to reduce work hours (Gautun and Hagen 2010). In line with this finding, earnings have been found to be lower among caregivers than among non-caregivers (Van Houtven et al. 2013; Heitmueller and Inglis 2007), and there is also evidence of a wage penalty for caregivers in the long run (Schmitz and Westphal 2017).

Although a large share of studies show negative effects of caregiving on labour supply, a recent review article shows that the results are dependent on how employment and caregiving are measured, methods used and the selection of study sample (Moussa 2019). Care intensity is often measured by the number of hours used to provide care or how often care is provided (i.e. the number of times per month or week). Non-temporal measures are also used to determine the degree of care intensity; Care that is given to persons living in the same household is considered to be more intensive than extra-residential care, personal care is regarded as more intensive than help with practical chores, and being the primary caregiver is more intensive than being a secondary caregiver (Moussa 2019). Also, in a Canadian study, end-of-life care was found to be a good proxy for measuring intensive care compared to short-term and long-term care (Williams et al. 2014). Several studies show that the effect of caregiving on employment pertains only to the most intensive caregivers, while less intensive care is more likely to result in reduced working hours than exit from work (Moussa 2019; Jacobs et al. 2017; Lilly et al. 2007; Kotsadam 2012).

Several studies investigating the association between informal caregiving and labour market outcomes have raised the problem of reverse causation (Heitmueller 2007; Kotsadam 2011, 2012; Carmichael and Charles 2003; Bolin et al. 2008; Moussa 2019). The challenge is to disentangle the proposed causal effect of providing care on labour market participation from selection into caregiving. Caregivers may be self-selected underemployed individuals who have lower costs related to caregiving, or they may be men and women with more capability for combining caregiving and labour market participation. In order to identify the causal relationship between caregiving and work, adult children who already have a lower labour market participation before starting to provide care must be separated from those who reduce their work hours because of caregiving responsibilities.

In general, daughters are more often caregivers than sons (e.g. Kotsadam 2011; Bauer and Sousa-Poza 2015; Grigoryeva 2017). An explanation from the neo-classical tradition is that women have weaker attachment to the labour market than men and thus lower *opportunity costs* associated with caregiving (Carmichael and Charles 2003). The economic cost of caregiving is assumed to be lower for low-skilled, low-paid, part-time workers and those already unemployed (Colombo et al. 2011; Ulmanen and Szebehely 2015), and women are more often represented in these groups. Previous studies also show that daughters are more exposed to negative labour market outcomes due to caregiving compared to sons, mainly explained by the more intensive care provided by daughters (Bauer and Sousa-Poza 2015).

The present study is inspired by a Norwegian study based on registry data conducted by Fevang et al. (2012). The authors used the demise of a lone parent as a proxy for higher caregiving needs in the period prior to the death of the parent and found a drop in employment, a small but significant negative effect on earnings, and a rising risk of claiming social benefits around a parent's death year/month. Also a recent Swedish

study based on registry data, found a correlation between the loss of a parent and work exit (Kridahl and Silverstein 2019). In both studies, it was assumed that the reported employment effects were caused by caregiving in the terminal stage of a parent's life. However, registry data do not provide information on actual care provision. The novelty of the present study is to use register data linked to survey data to broaden the understanding of register-based results in the mentioned studies.

The Case of Norway in a Comparative Perspective

Previous research shows that evidence regarding how individuals behave in the work and care nexus cannot be automatically transferred across welfare contexts. Negative employment effects for caregivers depend on the level of formal care that is available in different welfare states (Kotsadam 2011; Spiess and Schneider 2003). Norway, like the other Nordic countries, is characterised by extensive welfare services and a public responsibility for long-term care, combined with no legal obligations for adult children to care for older parents. The high degree of what Saraceno and Keck (2010) called *de-familialisation* in Norwegian social policy has resulted in high rates of female labour market participation. However, even in Norway, informal care makes up a significant share of the total care available to the adult population. Estimations have shown that the share of informal care is approximately 40% of all care provision (Holmøy et al. 2016). A number of studies have shown that the generous public care services available in the Nordic countries are associated with *more* family caregivers but less intensive help and care. In countries with lower levels of public care services, the overall number of family caregivers is lower, but more of the caregivers provide frequent personal care (Verbakel 2017; Brandt 2013; Brandt et al. 2009; Strauss and Trommer 2018). Because of the high level of public care services in the Nordic countries and because of family caregiving being a choice rather than a legal obligation, it has been suggested that the *effects* of caregiving on labour market participation are weaker compared to countries representing more family-oriented welfare models (Kotsadam 2011; Spiess and Schneider 2003). Recently, it has been suggested that family care has become less optional in Norway, as well as in the other Nordic countries, because of declining public care services (Jolanki et al. 2013; Gautun and Bratt 2016; Ulmanen and Szebehely 2015; Van Den Broek et al. 2019). This calls for updated research on how labour market participation and individual earnings of adult sons and daughters are affected by caregiving responsibilities in the Nordic context.

Data and Method

In order to investigate the consequences of care provision to older parents on adult children's labour market participation, the effect of caring for older parents in the terminal phase is investigated by analysing longitudinal survey and registry data from the Norwegian life course, ageing and generation study (NorLAG).¹ More specifically,

¹ NorLAG2 (2007/2008) was the second wave of NorLAG and include a total of 15,145 respondents from the whole country in the age group 18–79. Data collection for the third wave (2017) includes 6099 participants aged 50 years and older who responded to at least one of the previous two waves, of which 5711 responded both in 2007/8 and 2017 (Torsteinsen and Holmøy 2019).

the sample consists of individuals participating in wave 2 (2007/2008) of NorLAG who lost a lone parent during the five-year period after the survey (248 daughters and 265 sons aged 40 to 66).² The survey data was collected by computer-assisted telephone interviews (CATI) carried out by Statistics Norway in 2007/2008. The survey data was then linked to 50 years of register data between 1967 and 2017. The register data includes information on earnings, social security benefits and pensions,³ in addition to family members.

Compared to the large sample used in Fevang et al. (2012), with register observations from 308,706 Norwegian individuals in the years 1993 to 2005, the sample used here is considerably smaller. However, this study contributes with the use of linked data – a combination of survey and registry data. The survey data are used to identify actual caregivers, whereas information on earnings and parents' death year come from registry data. The linked design allows for the creation of groups of caregivers and non-caregivers based on information from the survey and for these to be followed several years before and after the survey, using updates from the registers.

Caregiving in the Terminal Phase of a Lone Parent's Life and Labour Market Participation

The strategy in this paper is to explore whether self-reported caregivers deviate from non-caregivers in the time path of the dependent outcome variables (employment and earnings) before and after the death of a lone parent. Annual records of pensionable earnings are collected by the Norwegian tax and income registers. Employment is measured as having annual earnings exceeding the basic amount (G) in the national insurance scheme, represented by a dummy variable where 1 is employed and 0 not employed. The annual earnings are standardised by dividing them by the amount representing one G for each observation year.⁴

Caregiving is operationalised as time to death, interacted with a direct observation of caregiving from the survey. First, the parent's death year is used as a proxy for amplified care needs as the parent is approaching death. The year of a parent's death is collected from register data, supplemented by information from the 2017 survey wave in case of missing information from the register.⁵ All observations are given a value representing how far in time the observation is from the parent's death. Because of a limited number of observations, the variable is collapsed to represent two and two years in the period before and after the parent dies. The reference level is eight or more (up to 20) years before the death year of a parent and the last observation is up to 10 years after.

In NorLAG2 (2007/2008), the respondents were asked in a telephone interview if they had regularly (at least monthly) given practical help to someone outside the household during the last 12 months. If they answered yes, they were then asked to

² Three respondents lost *two* parents that both were unmarried or divorced in the five-year period following the survey. Therefore, the sample was restructured to consist of parent-child dyads.

³ Data on social security benefits and pensions are only available between 2002 and 2017.

⁴ Currently (2019/2020), the basic amount (G) is 99,858 NOK.

⁵ Reasons for missing data on parents' death year: in some situations it is difficult to identify the parents of an individual in the registers. One reason can be that the parents have lived abroad. There is also less information available in the registers about kin for individuals born before the year 1952.

whom they had provided help (by naming up to five persons using a list of alternatives, including mother and father). The same question was repeated for personal caregiving (e.g. eating, getting up in the morning, getting dressed, bathing or using the toilet). Information about both regular help and personal care are combined into a dummy variable indicating caregiving. The value 1 represents caregivers (providing regularly help or personal care) and 0 represents non-caregivers. In the analyses, this dummy variable is interacted with the variable indicating the time to the parent's death.

The approach using the death year of a parent as a proxy for care needs relies on literature that states that need for care is higher in the final years of life (Romøren 2003; Gabrielsen 2013; Williams et al. 2014). Towards the end of life, it is also more common to make use of formal long-term care services. According to Gabrielsen (2013), 80% of the 80 to 85 year olds who died in 2011 in Norway had been users of public services. Among those above 90 years, the same was the case for close to 100%. Of these, 62% had been in long-term residence in a nursing home, and the median length of stay in long-term institutions before death was 1.3 years⁶ (Gabrielsen 2013). Romøren (2003) showed that the period with support from family informal caregivers before institutionalisation and/or death lasted for on average of 5.4 years, and was dominated by practical help. For about one-third of the caregivers, this “main phase” of caregiving was followed by an “escalation phase” of an average of 22 weeks before institutionalisation in a nursing home or hospital characterised by intensive personal care (Romøren 2003, pp. 98–100).

The use of a single measurement of caregiving from the survey 0–5 years before the parent's death year may be criticised for overlooking the fact that respondents who did not report giving care to older parents in the survey started to provide help or care *between* the survey and their parent's demise. Some may also have stopped or reduced their caregiving because the parent moved into an institution (nursing home). Although the estimates would probably have been more accurate with annual data on caregiving, it can be argued that a significant result in this study may indicate an identification of a “lower bound”. Also, the definition of care, consisting of both regularly provided practical help and personal care, can be criticised for being too wide. However, this broad definition indicates a relationship in which adult children support their parents. The assumption that these adult children are more likely to continue or reinforce their support when their parent's needs increase than those who did not report any support at all in the survey is supported by previous literature (Leopold et al. 2014). Finch and Mason (1993) used the concept of *developing commitments* to show that the selection of caregivers develops through more or less silent negotiations within families over time, often starting long before the actual care takes place. Support to parents in terms of help or care is therefore not only an expression of behaviour at the specific time of the survey but can be used as a token for a long-lasting close relationship in which caregiving plays a natural part.

It is a potential source of bias that individuals are studied in a limited observation window. The timing of a parent's death in this window is not independent of the timing of a parent's death in the individual's life course (Fevang et al. 2012, p. 1409). The timing of a parent's death in the life course may also be correlated with the individual's

⁶ The average was two years, but while some stays last much longer than others, the median is a more accurate measure of the general length of these stays. Three out of four stays lasted less than three years.

health and social background and bias the estimates if the observation window systematically limits the representation of individuals. Respondents who lost their parent in later years do contribute with more observations before the death of a parent and fewer observations after. Hence, those who lose their parents earlier contribute with more observations after the death year than those who lose their parents later, and if these people are systematically different from each other, it could be a source of bias. This problem is handled using fixed effects. In the fixed-effects model, a time-demeaning procedure is used to subtract the value of every observation on the dependent and independent variables from the person's mean. In other words, individuals are compared with themselves over time. All variables that are constant over time, both observed and unobserved, are cancelled out by this procedure and only *time-variant* variables that may be correlated with both parental death and the labour market outcomes need to be controlled for.

The fixed-effects model is executed by the `xtreg`, `fe`-command in the software package Stata/MP 14.2. In general, logit regression is viewed as more suitable than linear regression for binary dependent variables such as employment, because they guarantee that the probability of $y = 1$ is between 0 and 1. However, when using a logit model with fixed effects on panel data, individuals who do not vary on the dependent variable throughout the whole period are excluded from the analyses and the sample size is drastically reduced. Additionally, the linear probability model provides results that are easier to interpret. Therefore, the last model is preferred in this study, but the analysis of employment is also conducted using the conditional logit model and available in Appendix (Table 4).

The relationship between time to a parent's death year and an individual's participation in the workforce could be related to processes that change over time at both individual and societal level. Such processes could be individual ageing or policy reforms such as the Norwegian pension reform of 2011. All studies that have an interest in concepts that change over time encounter the challenge of disentangling age, period and cohort effects, also called the age-period-cohort (APC) conundrum (Glenn 2005). The problem is collinearity between age, time and cohort and not being able to include two of the dimensions in a regression model and let the third vary freely because $Age = Year - Birth\ year$. In this study, the dependent variable, time to a parent's death year, is a *fourth* dimension related to time and collinear with both age and observation year. A suggested solution to the APC problem is to recode the variables so that they are no longer perfectly collinear – for instance, by grouping years or ages together (Mason et al. 1973). In the present paper, the scale of the independent variable, time to death, is collapsed into two or more years together, which makes it technically possible to control for other APC dimensions in the model. In models with individual fixed effects, the birth cohort is treated as a constant variable that is already “controlled for” and therefore automatically omitted from the model. This means that only one of the other APC dimensions can be included without having to adjust the variables to break the collinearity. To be technically able to control for both age and calendar year in the same model, the age levels 49 and 50 years are collapsed together. This restriction builds on an observation in the data that there is a period around the age of 50 where earnings do not seem to change and where employment rates are more or less constant (as shown in Biørn et al. 2013).

As previously mentioned, studies that aim to explore whether there is an effect of caregiving on labour supply face a problem with reversed causation. Fevang et al.

(2012) use the event of a parent's death as an exogenous instrument to estimate causal effects of caregiving demands on labour supply in the years around this event. Still, they cannot rule out other explanations of the change in employment and earnings. This study shows how a group of self-reported caregivers deviate from non-caregivers in their labour supply around the same event, by including an interaction term representing caregivers. However, the allocation into the caregiver group is not exogenous with reference to labour market participation. The individual fixed effects only control for heterogeneity between individuals, and not endogenous change within the individual time paths. Labour market participation ahead of the decision to provide care can therefore be a source of endogeneity in how the two groups differ in their trends. Nevertheless, the aim of this study is not primarily to detect an effect with a statistical model that satisfies the assumptions needed to make causal inference within a counterfactual paradigm. The paper contributes to the literature by complementing the conclusions drawn by Fevang et al. (2012) with descriptive evidence regarding how the two groups deviate from each other.

Results

Descriptive Statistics

Table 1 summarizes the sample statistics using information from the 2007 survey in the NorLAG study. The two groups of caregivers and non-caregivers are compared both in the total sample and separately by gender. In the regression models presented in the next sections, individual fixed effects – that is, all constant characteristics – are controlled for and, as a result, the variables that do not vary over time are omitted from the models.

Table 1 shows descriptive statistics for caregivers and non-caregivers, both in 2007, to parents who died in one of the five consecutive years after the survey (2007–2011). In the total sample, 28% were caregivers, and of these, daughters comprised 61%. Descriptive statistics for caregivers and non-caregivers among sons and daughters are also presented separately. The number and percentage share of sons and daughters being caregivers are reported at the bottom of Table 1.

There was no significant difference in the average age of caregivers and non-caregivers in 2007. The educational differences between caregivers and non-caregivers were small, and only significant among sons. Caregiving sons were more often higher educated than non-caregiving sons, and the share of “low educated” was higher among non-caregiving sons than among the caregivers. A lower share of caregivers worked full-time (64%) compared to non-caregivers (73%), reflecting the gender composition of the two groups; Independent of caregiver status, a smaller share of women worked full-time compared with men in both groups. Among daughters, the share with excellent health was higher among non-caregivers (25%) compared to caregivers (13%), but on the other hand more of the caregiving daughters reported having “good health” (84%) than non-caregiving daughters (67%). Overall, the table indicates that non-caregiving daughters had somewhat better health, although the share

Table 1 Descriptive statistics of caregivers versus non-caregivers in 2007. Comparison of mean characteristics in the total sample and for sons and daughters separately

	All		Sig.	Sons		Sig.	Daughters		Sig.
	Caregiver	Non-caregiver		Caregiver	Non-caregiver		Caregiver	Non-caregiver	
Daughters	61%	43%	**						
Age	52.8	52.8		53.0	52.8		52.7	52.9	
Education: Low	13%	15%		9%	18%	+	16%	11%	
Education: Middle	41%	47%		43%	52%		40%	41%	
Education: High	46%	38%		48%	30%	*	44%	48%	
Working full-time	64%	73%	*	88%	87%		49%	54%	
Partner	75%	76%		82%	79%		71%	71%	
Children in household	45%	45%		48%	48%		43%	42%	
Siblings (mean no.)	1.93	2.13		1.96	2.17		1.91	2.09	
Self-rated health									
Excellent	20%	26%		30%	26%		13%	27%	*
Good	77%	68%	*	66%	69%		84%	67%	**
Poor	3%	5%		4%	5%		2%	6%	
Standardized earnings (Earnings in NOK/G)	5.4433	5.8487		7.3721	6.9107		4.2514	4.4662	
Respondents (N) (per cent)	145 (28%)	368 (72%)		56 (21%) (79%)	209 (79%)		89 (36%) (64%)	159 (64%)	

** $p < 0.01$ * $p < 0.05$ + $p < 0.10$

Two-tailed t-test used in the bivariate analyses.

Source: the Norwegian life course, ageing and generation study (NorLAG), 2007

reporting very poor health was slightly, but not significantly, higher among non-caregiving daughters. Although not significant, earnings in 2007 were lower for caregivers than for non-caregivers both in the total sample and among daughters. For sons, there was an opposite tendency, with higher average earnings among caregiving sons than among non-caregiving sons.

The following analyses take advantage of the linked design of the study and investigate whether the impact of time to loss of parent on the development in employment and earnings is different for caregivers compared to non-caregivers.

Figures 1 and 2 illustrate how the sample of caregivers and non-caregivers (both groups having lost a parent in the period) deviate from the population on the two dependent variables – employment and earnings. Each observation is compared to the mean level in the population within the same gender, age and observation year. The population is represented by the 6099 respondents attending the NorLAG study in the last wave in 2017.

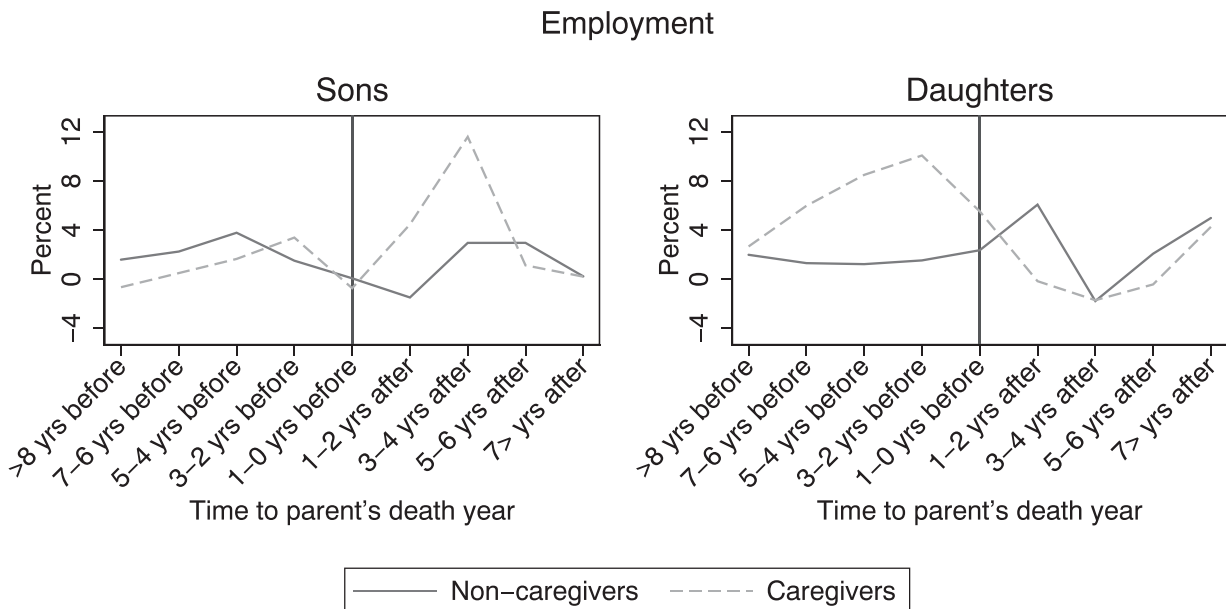


Fig. 1 Percentage difference in employment between the sample (caregivers and non-caregivers with a lone parent that died between 2007 and 2011) and the population in the years before and after the death year of a parent, for sons and daughters separately

According to Fig. 1, caregiving sons seem to have a higher employment rate than the rest of the population 3–4 years *after* a parent's death. Caregiving daughters are on average more likely to be employed than their peers are in the period *before* a parent's death. The difference in employment between non-caregiving sons and daughters and the rest of the population is most of the time slightly above the population mean. Five and more years after the parent's death, the employment level converges to the population mean for both groups of sons and rises for both groups of daughters who lose their parent.

Figure 2 shows that the level of earnings is higher among caregivers of both genders before the death of a parent, and seemingly more for caregiving sons, compared to both the population and to non-caregivers in the sample. There are lower levels of earnings after a parent's death for both sons and daughters who lose a parent compared to their

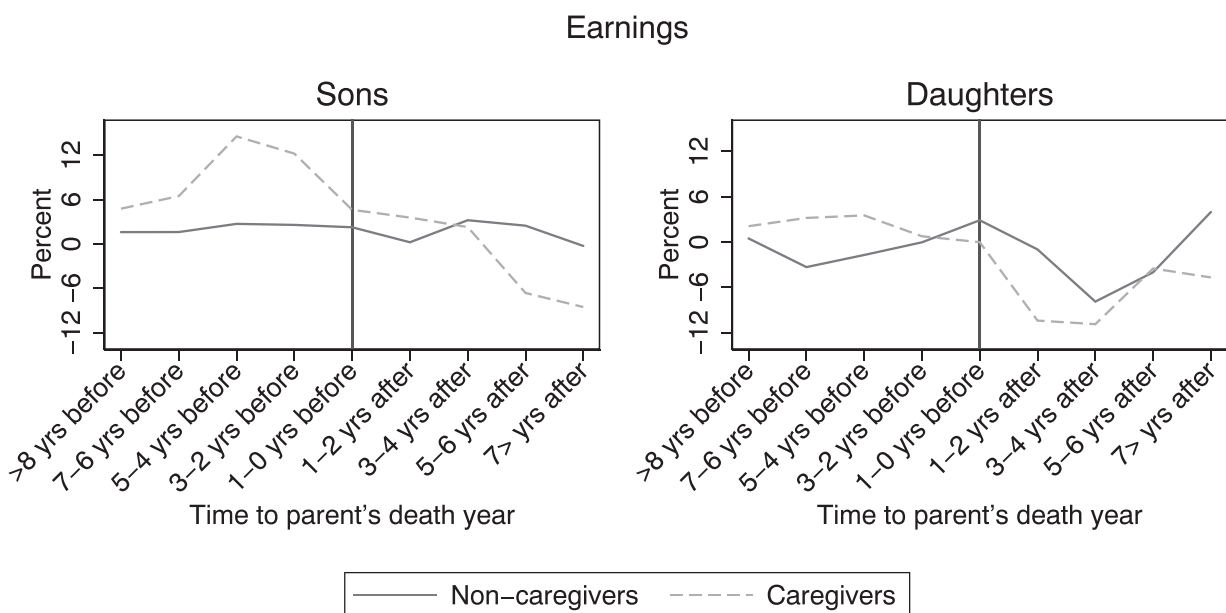


Fig. 2 Percentage difference in earnings between the sample (caregivers and non-caregivers with a lone parent that died between 2007 and 2011) and the population, in the years before and after the death year of a parent for sons and daughters separately

equals in the population in these years. For sons who did not provide care, earnings are relatively stable at the population level in all the years around their parent's death. For daughters, relative earnings are lower for caregivers 1–4 years after the parent's death, but regardless of caregiver status the negative trend is followed by all daughters who have lost a parent 3–4 years after the parent's death.

Impact of Caregiving on Employment

Table 2 shows results from a linear probability model of employment with fixed effects, controlled for age and calendar year using dummy variables (not shown).

The results show that the probability of being employed is lower in the period around a lone parent's death, for both sons and daughters. Model a shows that the probability of being employed is 6.6% points lower for sons in the year when a lone parent dies and the year before, compared to a reference period of eight or more years before the parent's death. Employment among daughters is also negatively affected by

Table 2 Results from linear probability regression model of the impact of time (years) to a lone parent's death on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coeff.	SE	Coeff	SE	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	–0.009	(0.015)	0.002	(0.019)	–0.014	(0.016)	–0.010	(0.021)
5–4 yrs. before	–0.012	(0.020)	–0.004	(0.026)	–0.019	(0.021)	–0.010	(0.027)
3–2 yrs. before	–0.035	(0.026)	–0.036	(0.033)	–0.048+	(0.026)	–0.050	(0.034)
1–0 yrs. before	–0.066*	(0.031)	–0.063	(0.039)	–0.077*	(0.031)	–0.075+	(0.040)
1–2 yrs. after	–0.047	(0.035)	–0.104*	(0.045)	–0.068+	(0.036)	–0.099*	(0.046)
3–4 yrs. after	–0.008	(0.040)	–0.135**	(0.052)	–0.032	(0.041)	–0.143**	(0.053)
5–6 yrs. after	–0.004	(0.045)	–0.114*	(0.058)	–0.008	(0.045)	–0.116*	(0.059)
7–10 yrs. after	0.010	(0.051)	–0.089	(0.065)	0.000	(0.051)	–0.090	(0.066)
Interaction (Time*care):								
6–7 yrs. before*care					0.023	(0.023)	0.034	(0.025)
5–4 yrs. before*care					0.030	(0.023)	0.020	(0.025)
3–2 yrs. before*care					0.050*	(0.023)	0.045+	(0.025)
1–0 yrs. before*care					0.035	(0.023)	0.040	(0.026)
1–2 yrs. after*care					0.075**	(0.024)	–0.007	(0.026)
3–4 yrs. after*care					0.081**	(0.025)	0.033	(0.027)
5–6 yrs. after*care					–0.024	(0.026)	0.016	(0.028)
7–10 yrs. after*care					0.007	(0.027)	0.015	(0.030)
Constant	0.988**	(0.298)	0.847*	(0.384)	0.992**	(0.298)	0.850*	(0.384)
Person-years (n)	7223		6880		7223		6880	
Persons (N)	264		248		264		248	
R ² (within):	0.123		0.071		0.126		0.072	

**p < 0.01 *p < 0.05 + p < 0.10

the death of a lone parent, but mainly so, and only significant in the years *after* the parent's death.

The coefficients of the first eight dummy variables in model c and d represent how the employment probability develops in the years after the reference period for those who did not report caregiving in 2007. The next eight coefficients, representing the interaction between the time dummies and caregiver status in 2007, show how much the caregivers deviate from this trend. Models c and d show no sign of an additional negative effect of being a caregiver on employment. On the opposite, sons who provided care to their parent had a higher probability of being employed both during 2–3 years prior to and 1–4 years after the parent's death.

Figure 3 shows the predicted impact of time to loss of a parent on employment, estimated from the linear probability model with fixed effects and controlled for age and observation year. Overall, the results indicate a negative development in employment around a parent's death, but it cannot be concluded that the decline in employment is related to caregiving from these results.

Impact of Caregiving on Earnings

Table 3 shows results from a linear regression of the impact of time to death of a parent on the log of standardised annual earnings, conditional on employment in the year of observation.

Model a in Table 3 shows no significant change in earnings in the years around a parent's death for the sons, controlled for age and observation year. The daughters' earnings are decreasing in the same period compared to the reference period of eight or more years before the loss of a lone parent (model b).

When including the interaction between time to death and caregiving in model c, we see that caregiving sons have a positive development in earnings 5–4 years before a parent's death compared to non-caregiving sons. That said, caregiving sons have a more negative development in the years after the parent's death compared to non-caregiving sons. Model d shows that caregiving daughters deviate negatively from non-

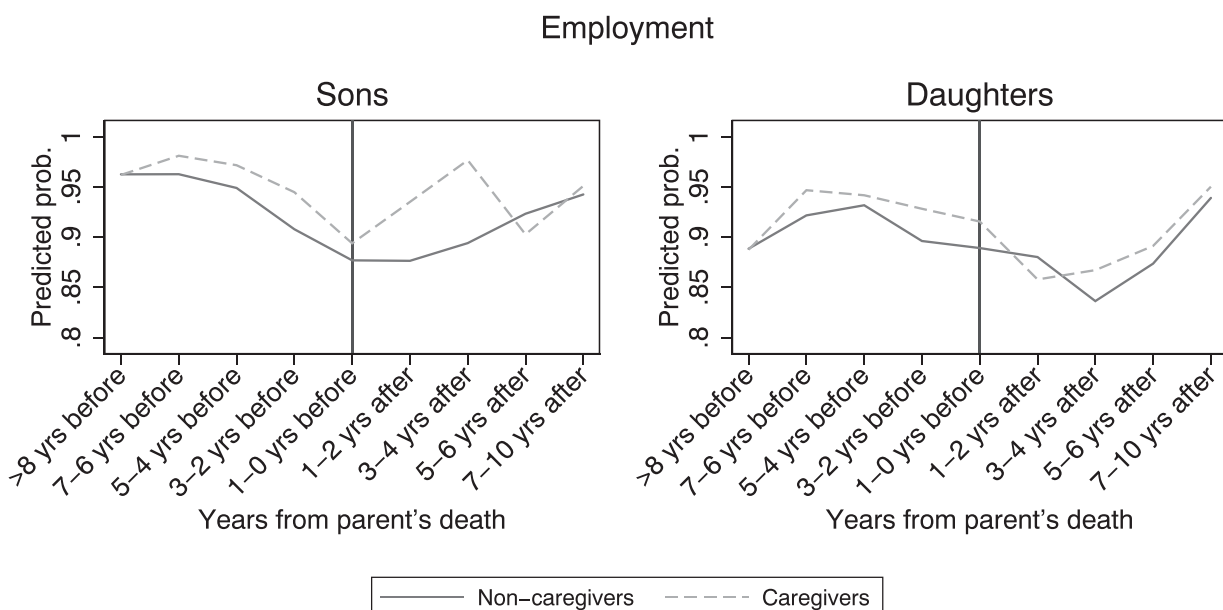


Fig. 3 Estimated impact of time (years) to loss of a lone parent on the probability of being in employment for caregivers and non-caregivers, estimated for sons and daughters separately

Table 3 Results from linear regression model (OLS) of the impact of time (years) to a lone parent's death on log of standardised earnings conditional on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coef.	Std.Err	Coef.	Std.Err	Coef.	Std.Err	Coef.	Std.Err
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	0.031	(0.023)	−0.066**	(0.024)	0.028	(0.025)	−0.066*	(0.026)
5–4 yrs. before	0.050	(0.031)	−0.106**	(0.032)	0.033	(0.032)	−0.097**	(0.034)
3–2 yrs. before	0.052	(0.040)	−0.118**	(0.040)	0.044	(0.040)	−0.092*	(0.042)
1–0 yrs. before	0.062	(0.048)	−0.105*	(0.048)	0.062	(0.048)	−0.079	(0.050)
1–2 yrs. after	0.034	(0.055)	−0.166**	(0.056)	0.037	(0.056)	−0.152**	(0.057)
3–4 yrs. after	0.039	(0.063)	−0.191**	(0.064)	0.054	(0.064)	−0.173**	(0.065)
5–6 yrs. after	0.038	(0.071)	−0.216**	(0.072)	0.060	(0.072)	−0.230**	(0.073)
7–10 yrs. after	0.072	(0.080)	−0.228**	(0.081)	0.094	(0.080)	−0.208*	(0.082)
Interaction (Time*care):								
6–7 yrs. before*care					0.014	(0.035)	−0.001	(0.031)
5–4 yrs. before*care					0.075*	(0.035)	−0.026	(0.031)
3–2 yrs. before*care					0.025	(0.036)	−0.073*	(0.031)
1–0 yrs. before*care					−0.015	(0.038)	−0.078*	(0.032)
1–2 yrs. after*care					−0.021	(0.038)	−0.049	(0.033)
3–4 yrs. after*care					−0.072+	(0.039)	−0.066+	(0.034)
5–6 yrs. after*care					−0.091*	(0.041)	0.022	(0.035)
7–10 yrs. after*care					−0.065	(0.043)	−0.077*	(0.036)
Constant	1.885**	(0.463)	1.334**	(0.470)	1.886**	(0.463)	1.332**	(0.470)
Person-years (n)	6763		6025		6763		6025	
Persons (N)	264		245		264		245	
R ² (within):	0.074		0.078		0.076		0.081	

**p < 0.01 *p < 0.05 + p < 0.10

caregiving daughters in how their earnings develop 3–0 years before a parent's death. There are also indications of an additional negative impact on earnings in the years after the loss of a parent, but here the overall trend in earnings is negative for all daughters who lose a parent, not only for those who reported being a caregiver.

Figure 4 shows estimates of the impact of time on standardised log earnings in the period, predicted after conducting the regression models c and d in Table 4. While Table 3 shows an overall stable trend in earnings for sons and a decreasing trend for daughters, the overall negative picture for daughters is not transmitted to Fig. 4. The explanation for this is found in the control for age and year dummies that are included in the regression models but not shown in Table 3.⁷

⁷ The development in earnings is positively related to calendar year for daughters, but not significantly related to later calendar years for sons. Because of collinearity between time to death and calendar years, one must be careful with the interpretation of these coefficients. When the calendar year dummies are replaced with a continuous variable representing time, only the first eight coefficients change, while the interaction effects indicating how caregivers deviate from non-caregivers change only marginally.

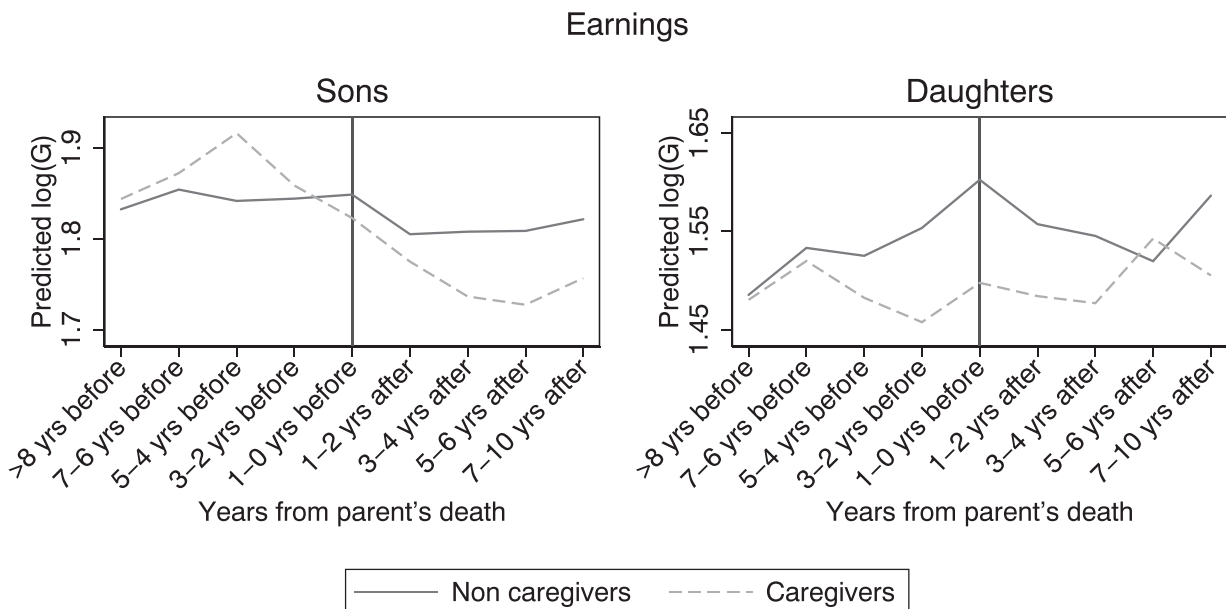


Fig. 4 Estimated impact of time (years) to loss of a lone parent on the log of earnings divided by G for caregivers and non-caregivers for sons and daughters separately

The focus of this article is the difference between caregivers and non-caregivers, and the results reported in both Table 3 and Fig. 4 indicate that the earnings of the two groups are developing differently in the period when they lose a lone parent. Caregiving daughters have a weaker development in their earnings in the years before and after the death compared to daughters who did not provide care, and caregiving sons experience a negative development in earnings after the loss of a parent.

Robustness Assessment

Previous research has argued that it is important for the assessment and interpretation of the consequences of caregiving that the measures of caregiving are sensitive to the intensity and character of the care provided. This section provides arguments for why the sample (and measurement of caregiving) chosen for the main analyses is preferred for answering the questions asked in the paper. The crucial point is balancing the need for an adequate sample size with a measure of caregiving that distinguishes the kind of care that is likely to come with a burden.

The measurement of caregiving is expected to be more robust for the group that lost a parent in the first years after the survey than for those who lost their parent later (up to ten years after the survey). To test this assumption, the analyses have been conducted for the total sample of respondents who lost their parents up to ten years after the survey (2007–2017)⁸ (see Tables 5 and 6 in Appendix). The analyses show the same tendencies regarding the difference between caregivers and non-caregivers as in the main analyses, but even though the sample is larger, the difference between the groups is not as significant as in the results shown above. This finding supports the assumption that caregiving measured closer to the time of death is more accurate, even though some observations are lost using this restriction.

The sample was also restricted to observations related to the loss of a *lone* parent. The reason for making this choice is that the burden of caregiving is expected to be higher

⁸ In total 1793 respondents lost at least one of their parents in one of the ten years following the second wave of NorLAG (from 2007 to 2017).

when the parent has no partner available. Additional analyses were conducted for a sample consisting of dyads that included both married and lone parents who died between 2007 and 2011 (Tables 7 and 8 in Appendix). When considering both lone and married parents, employment was no longer significantly lower around a parent's death – in fact, it was significantly higher for caregivers of both genders in the period around a parent's death compared to non-caregivers. This might indicate that the loss of a married parent is more often experienced in an earlier life phase – when employment is more stable – than the loss of a lone parent. The impact on earnings of losing a lone or married parent was showing the same tendency as in the main analyses. Although less negative and significant for daughters, the negative impact of time to the parent's death on sons' earnings was more significant than in the main analyses. This could be related to the larger sample size, but it could also indicate that a decrease in the earnings of sons around a parent's death is not necessarily as related to the caregiver burden as it is for daughters.

Although the survey questionnaire distinguishes between practical help and personal care given in 2007, the two measures are collapsed into one indicator in the analyses (as few respondents reported on only having provided personal care). Tables 9 and 10 in the Appendix provides additional analyses where only personal care is interacted with time to death. These analyses show no significant difference in employment between caregivers and non-caregivers, except for a positive effect for caregiving daughters 3 and more years after the parent's demise. The negative effect of time on earnings, found when practical help was included in the main model, was not repeated when using only personal care, with one exception: a negative impact for caregiving sons 5–10 years after the death of a parent.

The analyses of employment and earnings have also been conducted using random effects in addition to fixed effects, which gives similar results and coefficient estimates (available upon request). The binary employment outcome was also analysed in a conditional logit model yielding coefficients with the same tendency as the linear probability model, but with results that were less easy to interpret (See Table 4 in Appendix).

Discussion

The aim of the present study was to explore whether providing care to a parent in need of care had an impact on sons' and daughters' employment and earnings in Norway. The question was examined by focusing on changes in employment and earnings in the years before and after an adult child loses a lone parent. The data was collected in Norway, where female labour market participation is high and elder care is a public responsibility. Despite a de-familialised context, informal caregiving has been shown to be an important part of the welfare system, which depends on a sustainable balance between informal caregiving and labour market participation. This paper shows that this balance is fragile.

The data analysis addressing the probability of being employed showed a negative trend in both the years before and the period after the loss of a lone parent. There was, however, no negative effect of time to the parent's death on employment associated with being a caregiver compared to being a non-caregiver. Therefore, the negative effect observed in the total sample could not be ascribed to caregiving. Other explanations related to losing a parent, such as an effect of inheritance, grief or change in value orientation, cannot be excluded. Nevertheless, there was a difference between the caregivers and the non-

caregivers in how their earnings were affected by having a parent entering the terminal stage of life. The analyses conducted separately for sons and daughters showed that caregiving daughters deviated significantly from non-caregiving daughters in their earnings before a parent's death. After a parent's death, caregivers of both genders had a more negative development in earnings than those who were not caregivers.

The results from this study are consistent with Fevang et al. (2012), who found a negative development in employment and earnings around the death of a parent. This paper adds to their results by showing that the drop in earnings is likely to be related to a caregiver role. However, the results did not support the assumption that the effect of time to a parent's death on employment was related to caregiving.

The results are in line with previous research that has shown that less intensive caregiving is more likely to affect work at the intensive margin, but not at the extensive margin. Since the most demanding tasks, such as personal care, are commonly taken care of by public services in the Norwegian context, adult children are less at risk of leaving employment to take care of their parents, but they may experience a negative effect on their earnings as a consequence of providing care in the terminal phase of their parents' lives.

Only daughters, not sons, who provided care experienced a penalty on their earnings *before* their parent's death – which is the period when actual caregiving takes place. Previous research has shown that the difference in consequences of caregiving between the genders can be attributed to the different care tasks that men and women take on when providing care. One explanation for the less significant impact that sons' caregiving has on their earnings before a parent's death could therefore be related to a difference in care intensity relating to not only the tasks but also the time used in caregiving. Intensity is important, and it is a limitation of the study that the number of hours of care provided is not measured.

Both sons and daughters experienced a negative impact of caregiving on earnings *after* a parent's death. One explanation is that adult children who provide care have less time to invest in career development and job advancement when their parents enter the terminal phase. Some might reduce work hours or take up paid or unpaid leave to cope with the situation; both might hamper their career development (Skira 2015). Earlier research has shown that caregiving daughters in Norway have a higher risk of absence from work due to sick leave (Ugreninov 2013; Løken et al. 2017; Abrahamsen and Grøtting 2019). Sick leave absence in Norway has a replacement rate of 100% of the wage from day one and therefore does not affect earnings immediately but has negative consequences on earnings in the longer run (Markussen 2012). A second explanation is that inheritance compensate for a drop in earnings. Previous studies show that the reception of a bequest or even its expectation can be a reason for reducing work hours or leaving the labour market (Brown et al. 2010; Bø et al. 2019). Also, Fevang et al. (2012) found a rise in labour supply among those who expected little or no inheritance in the years after the lone parent's death, while labour supply in the years before the parent's death was independent of the expected bequest. However, there is less reason to believe that caregivers in Norway differ much from non-caregivers in the receipt of inheritance. Legislation requires that children inherit from their parents and a large share of inheritance is shared equally between siblings. Thus, the possibility of rewarding one child for providing care above another is limited. In order to control for a "wealth shock" from inheritance, gross wealth each year was used as a control in Tables 11 and 12 available in the Appendix. It should be noted that information about gross wealth is not available for the years before 2002, and because of a large amount

of missing data in the reference period before the parent's death, the variable is not included in the main analyses. When wealth is included in the model, the number of observations per respondent falls drastically. The coefficient size of the effect of caregiving is substantially the same but the results are no longer significant. A third explanation is that the terminal phase might lead to changes in sons' and daughters' view of life. Facing the death of a parent is an existential experience and may lead to changes in the choices that men and women make in their own lives (Umberson 2003). If this is the case, the results presented here suggest that caregiving sons and daughters are more liable to respond this way.

A limitation of this study is the small sample size. Although several thousand respondents were involved in the NorLAG study, only a small share experienced the loss of a lone parent during the five-year period after the survey. The supplementary analyses provided in the Appendix show that sample restrictions were necessary in order to conduct the analyses on an adequate sample but also that potentially important control variables had to be excluded because of missing information. Also, the inability to identify changes in caregiver status between the survey and the death year of the parent may be a source of lowered data quality. This might hide a true difference in employment between the two groups. Although the data in the NorLAG study is well designed to evaluate questions about intergenerational relationships, caregiving and work, the results prompt new questions, which need more detailed and comprehensive data to be answered.

In conclusion, the unique combination of register data and large-scale survey data in the NorLAG study has offered an opportunity to identify a lower bound of an effect on earnings measured in registers related to being a caregiver ahead of a parent's death measured in the survey. The negative impact of caregiving on earnings is particularly apparent for daughters who provide care to a parent in the terminal phase. The results indicate an economic penalty of caregiving to older parents that might exacerbate the already disadvantaged position of women entering the last years of their working lives with regard to wages and pension earnings. The gender division in both the provision of care to parents and the economic costs of caregiving might further contribute to economic inequalities between men and women.

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Compliance with Ethical Standards

Conflict of Interest The author declare no conflict of interest.

Appendix

Table 4 Results from conditional logit regression model of the impact of time to a lone parent's death on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Logit	SE	Logit	SE	Logit	SE	Logit	SE
8 or more yrs. before (ref.)								
6–7 yrs. before	−0.496	(0.524)	0.073	(0.360)	−0.761	(0.557)	−0.193	(0.394)
5–4 yrs. before	−0.959	(0.736)	0.015	(0.500)	−1.402+	(0.764)	−0.120	(0.534)
3–2 yrs. before	−2.139*	(0.904)	−0.674	(0.617)	−2.564**	(0.929)	−0.990	(0.640)
1–0 yrs. before	−2.961**	(1.040)	−1.350+	(0.730)	−3.381**	(1.073)	−1.629*	(0.753)
1–2 yrs. after	−2.777*	(1.182)	−2.152*	(0.836)	−3.327**	(1.216)	−2.238**	(0.857)
3–4 yrs. after	−2.526+	(1.328)	−2.613**	(0.935)	−3.004*	(1.366)	−2.861**	(0.954)
5–6 yrs. after	−2.994*	(1.480)	−2.639*	(1.042)	−2.927+	(1.529)	−2.748**	(1.066)
7–10 yrs. after	−2.777	(1.702)	−2.406*	(1.189)	−2.625	(1.754)	−2.367+	(1.222)
Interaction (Time*care):								
6–7 yrs. before*care					1.128	(0.858)	0.783	(0.514)
5–4 yrs. before*care					1.444	(0.882)	0.257	(0.501)
3–2 yrs. before*care					0.938	(0.837)	0.758	(0.480)
1–0 yrs. before*care					0.408	(0.662)	0.538	(0.452)
1–2 yrs. after*care					1.214	(0.795)	−0.072	(0.410)
3–4 yrs. after*care					0.508	(0.808)	0.410	(0.421)
5–6 yrs. after*care					−1.617*	(0.708)	−0.064	(0.520)
7–10 yrs. after*care					−1.255	(0.863)	−0.462	(0.687)
Person-Years (n)	2796		3738		2796		3738	
Persons (N)	104		135		104		135	

** $p < 0.01$ * $p < 0.05$ + $p < 0.10$

Table 5 Results from a linear probability model of the impact of time to a lone parent's death (between 2007 and 2017) on employment controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	0.006	(0.009)	–0.004	(0.010)	0.004	(0.009)	–0.011	(0.012)
5–4 yrs. before	0.015	(0.010)	–0.007	(0.012)	0.007	(0.011)	–0.014	(0.014)
3–2 yrs. before	0.029*	(0.012)	–0.013	(0.014)	0.024+	(0.013)	–0.023	(0.016)
1–0 yrs. before	0.021	(0.014)	–0.011	(0.017)	0.026+	(0.015)	–0.021	(0.018)
1–2 yrs. after	0.034*	(0.016)	–0.029	(0.019)	0.026	(0.017)	–0.023	(0.020)
3–4 yrs. after	0.072**	(0.019)	–0.051*	(0.022)	0.059**	(0.019)	–0.039+	(0.023)
5–6 yrs. after	0.076**	(0.021)	–0.044+	(0.025)	0.082**	(0.022)	–0.041	(0.027)
7–10 yrs. after	0.079**	(0.025)	–0.013	(0.029)	0.081**	(0.025)	–0.012	(0.030)
Interaction (Time*care):								
6–7 yrs. before*care					0.011	(0.016)	0.020	(0.016)
5–4 yrs. before*care					0.035*	(0.016)	0.020	(0.016)
3–2 yrs. before*care					0.026	(0.016)	0.027	(0.017)
1–0 yrs. before*care					–0.019	(0.016)	0.028	(0.017)
1–2 yrs. after*care					0.040*	(0.017)	–0.013	(0.018)
3–4 yrs. after*care					0.059**	(0.020)	–0.033	(0.021)
5–6 yrs. after*care					–0.027	(0.025)	–0.008	(0.025)
7–10 yrs. after*care					–0.002	(0.028)	0.000	(0.028)
Constant	1.097**	(0.217)	0.876**	(0.268)	1.103**	(0.217)	0.876**	(0.268)
Person-Years (n)	14,330		13,766		14,330		13,766	
Persons (N)	575		543		575		543	
R2 (within)	0.119		0.062		0.121		0.063	

** $p < 0.01$ * $p < 0.05$ + $p < 0.10$

Table 6 Results from an OLS regression model of the impact of time to a lone parent's death (between 2007 and 2017) on earnings conditional on employment and controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	0.014	(0.013)	−0.025*	(0.013)	0.012	(0.014)	−0.023	(0.015)
5–4 yrs. before	0.040**	(0.015)	−0.054**	(0.015)	0.031*	(0.016)	−0.052**	(0.017)
3–2 yrs. before	0.037*	(0.018)	−0.060**	(0.018)	0.036+	(0.019)	−0.051**	(0.019)
1–0 yrs. before	0.034	(0.021)	−0.080**	(0.021)	0.034	(0.022)	−0.072**	(0.022)
1–2 yrs. after	0.027	(0.024)	−0.119**	(0.024)	0.025	(0.025)	−0.121**	(0.025)
3–4 yrs. after	0.037	(0.028)	−0.149**	(0.027)	0.042	(0.029)	−0.148**	(0.029)
5–6 yrs. after	0.036	(0.032)	−0.138**	(0.031)	0.053	(0.033)	−0.151**	(0.033)
7–10 yrs. after	0.065+	(0.036)	−0.125**	(0.035)	0.080*	(0.038)	−0.107**	(0.037)
Interaction (Time*care):								
6–7 yrs. before*care					0.009	(0.023)	−0.005	(0.020)
5–4 yrs. before*care					0.039+	(0.023)	−0.007	(0.020)
3–2 yrs. before*care					0.005	(0.024)	−0.026	(0.020)
1–0 yrs. before*care					−0.002	(0.025)	−0.023	(0.021)
1–2 yrs. after*care					0.012	(0.026)	0.004	(0.022)
3–4 yrs. after*care					−0.019	(0.029)	−0.006	(0.026)
5–6 yrs. after*care					−0.081*	(0.037)	0.035	(0.031)
7–10 yrs. after*care					−0.060	(0.041)	−0.056+	(0.034)
Constant	1.710**	(0.319)	1.489**	(0.323)	1.714**	(0.319)	1.489**	(0.323)
Person-Years (n)	13,296		12,018		13,296		12,018	
Persons (N)	575		537		575		537	
R2 (within)	0.0602		0.0696		0.0610		0.0702	

**p < 0.01 *p < 0.05 + p < 0.10

Table 7 Results from a linear probability model of the impact of time to a lone or married parent's death on employment controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	0.009	(0.011)	–0.002	(0.014)	0.000	(0.011)	–0.014	(0.015)
5–4 yrs. before	0.018	(0.014)	–0.000	(0.019)	0.009	(0.015)	–0.009	(0.020)
3–2 yrs. before	0.005	(0.018)	–0.006	(0.024)	–0.003	(0.018)	–0.015	(0.024)
1–0 yrs. before	–0.015	(0.021)	–0.003	(0.028)	–0.024	(0.022)	–0.011	(0.029)
1–2 yrs. after	–0.001	(0.025)	–0.001	(0.033)	–0.013	(0.025)	–0.001	(0.034)
3–4 yrs. after	0.031	(0.028)	–0.012	(0.038)	0.015	(0.028)	–0.013	(0.038)
5–6 yrs. after	0.044	(0.031)	0.010	(0.042)	0.036	(0.032)	0.010	(0.043)
7–10 yrs. after	0.061+	(0.035)	0.045	(0.048)	0.054	(0.036)	0.042	(0.048)
Interaction (Time*care):								
6–7 yrs. before*care					0.038*	(0.016)	0.040*	(0.019)
5–4 yrs. before*care					0.042**	(0.016)	0.031+	(0.019)
3–2 yrs. before*care					0.033*	(0.016)	0.039*	(0.019)
1–0 yrs. before*care					0.037*	(0.016)	0.040*	(0.019)
1–2 yrs. after*care					0.047**	(0.017)	0.013	(0.020)
3–4 yrs. after*care					0.066**	(0.017)	0.020	(0.020)
5–6 yrs. after*care					0.023	(0.018)	0.019	(0.021)
7–10 yrs. after*care					0.020	(0.019)	0.032	(0.023)
Constant	0.933**	(0.219)	0.961**	(0.290)	0.936**	(0.219)	0.961**	(0.290)
Person-Years (n)	13,659		13,369		13,659		13,369	
Persons (N)	497		484		497		484	
R2 (within)	0.122		0.0769		0.124		0.0777	

**p < 0.01 *p < 0.05 + p < 0.10

Table 8 Results from an OLS regression model of the impact of time to a lone or married parent's death on earnings conditional on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender

	a. Sons		b. Daughters		c. Sons		d. Daughters	
	Coeff	SE	Coeff	SE	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)								
6–7 yrs. before	0.003	(0.017)	−0.041*	(0.017)	0.005	(0.018)	−0.040*	(0.018)
5–4 yrs. before	0.013	(0.022)	−0.034	(0.022)	0.012	(0.023)	−0.026	(0.023)
3–2 yrs. before	0.026	(0.028)	−0.026	(0.028)	0.030	(0.029)	−0.016	(0.029)
1–0 yrs. before	0.010	(0.034)	0.004	(0.034)	0.020	(0.034)	0.013	(0.035)
1–2 yrs. after	−0.006	(0.039)	−0.026	(0.040)	0.007	(0.040)	−0.026	(0.040)
3–4 yrs. after	0.009	(0.045)	−0.045	(0.045)	0.028	(0.045)	−0.031	(0.046)
5–6 yrs. after	0.024	(0.050)	−0.055	(0.051)	0.047	(0.051)	−0.063	(0.052)
7–10 yrs. after	0.042	(0.057)	−0.058	(0.057)	0.055	(0.057)	−0.050	(0.058)
Interaction (Time*care):								
6–7 yrs. before*care					−0.010	(0.026)	−0.004	(0.022)
5–4 yrs. before*care					−0.001	(0.026)	−0.027	(0.022)
3–2 yrs. before*care					−0.023	(0.026)	−0.037+	(0.023)
1–0 yrs. before*care					−0.050+	(0.027)	−0.033	(0.023)
1–2 yrs. after*care					−0.061*	(0.028)	−0.009	(0.024)
3–4 yrs. after*care					−0.081**	(0.028)	−0.056*	(0.025)
5–6 yrs. after*care					−0.090**	(0.029)	0.012	(0.026)
7–10 yrs. after*care					−0.035	(0.030)	−0.040	(0.027)
Constant	1.939**	(0.349)	1.526**	(0.341)	1.941**	(0.349)	1.515**	(0.341)
Person-Years (n)	12,791		11,799		12,791		11,799	
Persons (N)	496		480		496		480	
R2 (within)	0.0926		0.0920		0.0941		0.0928	

**p < 0.01 *p < 0.05 + p < 0.10

Table 9 Results from a linear probability model of the impact of time to a lone parent's death on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender. Time to death year is interacted with *personal care*

	a. Sons		b. Daughters	
	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)				
6–7 yrs. before	−0.012	(0.016)	0.002	(0.021)
5–4 yrs. before	−0.018	(0.021)	0.004	(0.028)
3–2 yrs. before	−0.039	(0.027)	−0.028	(0.034)
1–0 yrs. before	−0.055+	(0.032)	−0.059	(0.041)
1–2 yrs. after	−0.025	(0.037)	−0.094*	(0.047)
3–4 yrs. after	0.020	(0.042)	−0.128*	(0.054)
5–6 yrs. after	0.042	(0.047)	−0.089	(0.060)
7–10 yrs. after	0.070	(0.053)	−0.059	(0.068)
Interaction (Time*care):				
6–7 yrs. before*care	0.029	(0.036)	0.031	(0.034)
5–4 yrs. before*care	0.029	(0.036)	0.012	(0.034)
3–2 yrs. before*care	0.056	(0.036)	0.021	(0.034)
1–0 yrs. before*care	−0.022	(0.036)	0.012	(0.035)
1–2 yrs. after*care	−0.012	(0.037)	0.031	(0.036)
3–4 yrs. after*care	−0.029	(0.038)	0.090*	(0.036)
5–6 yrs. after*care	−0.064	(0.039)	0.080*	(0.037)
7–10 yrs. after*care	−0.060	(0.037)	0.102**	(0.037)
Constant	1.033**	(0.302)	0.800*	(0.395)
Person-Years (n)	6698		6410	
Persons (N)	246		231	
R2 (within)	0.129		0.068	

**p < 0.01 *p < 0.05 + p < 0.10

Table 10 Results from an OLS regression model of the impact of time to a lone parent's death on earnings conditional on employment, controlled for age, calendar year and individual fixed effects. Separate models by gender. Time to death year is interacted with *personal care*

	a. Sons		b. Daughters	
	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)	.	(.)	.	(.)
6–7 yrs. before	0.026	(0.025)	−0.058*	(0.026)
5–4 yrs. before	0.040	(0.033)	−0.100**	(0.034)
3–2 yrs. before	0.051	(0.042)	−0.098*	(0.043)
1–0 yrs. before	0.061	(0.050)	−0.071	(0.051)
1–2 yrs. after	0.033	(0.059)	−0.120*	(0.059)
3–4 yrs. after	0.048	(0.067)	−0.140*	(0.068)
5–6 yrs. after	0.066	(0.075)	−0.167*	(0.076)
7–10 yrs. after	0.102	(0.084)	−0.151+	(0.085)
Interaction (Time*care):				
6–7 yrs. before*care	0.057	(0.055)	0.021	(0.042)
5–4 yrs. before*care	0.075	(0.055)	0.025	(0.042)
3–2 yrs. before*care	−0.027	(0.055)	−0.031	(0.043)
1–0 yrs. before*care	0.017	(0.059)	−0.008	(0.045)
1–2 yrs. after*care	−0.027	(0.060)	0.021	(0.046)
3–4 yrs. after*care	−0.060	(0.062)	0.062	(0.046)
5–6 yrs. after*care	−0.145*	(0.064)	0.090+	(0.046)
7–10 yrs. after*care	−0.124*	(0.058)	−0.016	(0.046)
Constant	1.826**	(0.474)	1.341**	(0.490)
Person-Years (n)	6273		5625	
Persons (N)	246		228	
R2 (within)	0.074		0.082	

**p < 0.01 *p < 0.05 + p < 0.10

Table 11 Results from a linear probability model of the impact of time to a lone parent's death on employment, controlled for age, calendar year, individual fixed effects and wealth. Separate models by gender

	a. Sons		b. Daughters	
	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)				
6–7 yrs. before	–0.007	(0.025)	0.015	(0.034)
5–4 yrs. before	–0.007	(0.032)	0.023	(0.041)
3–2 yrs. before	–0.036	(0.043)	–0.002	(0.052)
1–0 yrs. before	–0.064	(0.054)	–0.014	(0.064)
1–2 yrs. after	–0.054	(0.065)	–0.022	(0.076)
3–4 yrs. after	–0.021	(0.076)	–0.051	(0.089)
5–6 yrs. after	0.004	(0.086)	–0.012	(0.101)
7–10 yrs. after	0.018	(0.100)	0.036	(0.116)
Interaction (Time*care):				
6–7 yrs. before*care	–0.002	(0.048)	0.035	(0.047)
5–4 yrs. before*care	–0.004	(0.046)	0.028	(0.045)
3–2 yrs. before*care	0.022	(0.046)	0.053	(0.045)
1–0 yrs. before*care	0.007	(0.046)	0.049	(0.046)
1–2 yrs. after*care	0.046	(0.047)	0.001	(0.046)
3–4 yrs. after*care	0.055	(0.047)	0.038	(0.046)
5–6 yrs. after*care	–0.049	(0.048)	0.019	(0.047)
7–10 yrs. after*care	–0.026	(0.050)	0.006	(0.049)
Wealth	0.000	(0.000)	–0.000	(0.000)
Constant	0.961**	(0.058)	0.914**	(0.070)
Person-Years (n)	3869		3646	
Persons (N)	264		248	
R2 (within)	0.136		0.0695	

**p < 0.01 *p < 0.05 + p < 0.10

Table 12 Results from an OLS regression model of the impact of time to a lone parent's death on earnings conditional on employment, controlled for age, calendar year, individual fixed effects and wealth. Separate models by gender

	a. Sons		b. Daughters	
	Coeff	SE	Coeff	SE
Time: 8 or more yrs. before (ref.)				
6–7 yrs. before	0.060+	(0.033)	−0.002	(0.038)
5–4 yrs. before	0.072+	(0.044)	0.011	(0.046)
3–2 yrs. before	0.088	(0.058)	0.050	(0.059)
1–0 yrs. before	0.111	(0.073)	0.098	(0.073)
1–2 yrs. after	0.097	(0.088)	0.060	(0.087)
3–4 yrs. after	0.136	(0.103)	0.065	(0.102)
5–6 yrs. after	0.159	(0.118)	0.038	(0.115)
7–10 yrs. after	0.230+	(0.136)	0.108	(0.132)
Interaction (Time*care):				
6–7 yrs. before*care	−0.019	(0.063)	0.010	(0.053)
5–4 yrs. before*care	0.043	(0.061)	−0.028	(0.051)
3–2 yrs. before*care	0.001	(0.061)	−0.067	(0.051)
1–0 yrs. before*care	−0.050	(0.062)	−0.077	(0.052)
1–2 yrs. after*care	−0.050	(0.062)	−0.054	(0.053)
3–4 yrs. after*care	−0.100	(0.063)	−0.068	(0.053)
5–6 yrs. after*care	−0.117+	(0.064)	0.006	(0.054)
7–10 yrs. after*care	−0.120+	(0.067)	−0.108+	(0.056)
Wealth	0.000**	(0.000)	−0.000*	(0.000)
Constant	1.900**	(0.087)	1.501**	(0.088)
Person-Years (n)	3552		3201	
Persons (N)	262		242	
R2 (within)	0.0970		0.0767	

**p < 0.01 *p < 0.05 + p < 0.10

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